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JPRS Report

Nuclear Developments

Nuclear Developments

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Defense White Paper Nuclear Policy Criticized

Veterans Against Nuclear Arms

51200020 Ottawa THE OTTAWA CITIZEN in English
12 Feb 88 p A5

[Text] The government's white paper on defence reflects military thinking of the 1930s and 1940s and the Cold War ideology of the 1950s, says a group of former military officers. Veterans Against Nuclear Arms say the paper contains distorted pictures of the Soviet threat and Soviet intentions toward the West that are dangerously out of date. The group is also critical of the opposition parties' defence policies. Canadian defence policy should be designed to prevent war and to revitalize international bodies such as the United Nations as dispute-resolving and peacekeeping agencies, the veterans say. In a booklet to be released today, the veterans say nuclear weapons have made war obsolete because neither side can win. They call on the government to publish a white paper on external affairs policy so a national debate on defence can be held in the context of Canada's foreign policy.

Church Leaders' Coalition

51200020 Toronto THE GLOBE AND MAIL in English
19 Feb 88 p A5

[Article by Robert Matas]

[Text] A coalition of church leaders says Canada's latest defence white paper is alarmist, jingoistic and out of step with the momentum toward arms control.

In a recent letter to Prime Minister Brian Mulroney, the Canadian Council of Churches says the federal government has failed to provide a reliable assessment of the threat confronting Canada or to acknowledge the world's primary security concerns.

The defence white paper, published last June, described the principal direct threat to Canada as a nuclear attack on North America by the Soviet Union. The paper also set out plans for a \$200-billion defence program for the next 15 years that included the acquisition of up to 12 nuclear-powered submarines.

In their letter, the religious leaders attack the decision to buy the submarines, which they say could pull Canada into "a dangerous and provocative maritime strategy that would increase the likelihood of nuclear war."

Acquiring the submarines would explicitly violate Canada's own trade policy in nuclear materials, the letter says. Canada has opposed efforts by Argentina, Brazil and India to buy nuclear-powered boats because of concern about proliferation of nuclear weapons.

Paula Butler, a spokesman for the church council, said in an interview yesterday that the letter was sent to Mr Mulroney because the church leaders are seriously concerned about the tone of the defence white paper. The group has asked for a meeting with Mr Mulroney to discuss defence issues, she added.

The council met former Prime Minister Pierre Trudeau several times, but this is the coalition's first request for a meeting with Mr Mulroney, who became prime minister in 1984.

A spokesman for the Prime Minister's Office said yesterday that the letter was received this week and a response is being prepared.

The letter is signed by 12 religious leaders, including Archbishop James Hayes, president of the Canadian Conference of Catholic Bishops; Rev Anthony Plomp, Moderator of the Presbyterian Church in Canada; Anne Squire, Moderator of the United Church of Canada, and Archbishop Michael Peers, Primate of the Anglican Church of Canada.

In their submission to Mr Mulroney, the religious leaders say Canadian security relies on an international order that respects Canadian sovereignty and territorial integrity, not on Canada's ability to defend itself militarily.

With vast territory and a small population, Canada could not possibly repel a determined invader solely with its military force, they say. They add that, in fact, there is not "the remotest threat" of such an invasion.

The church leaders also respond to a comment by External Affairs Minister Joe Clark, who said last year that "sovereignty claims you can't defend gradually disappear." If sovereignty depended upon a demonstrated capacity to defend against all attacks, Canada's sovereignty over even Ottawa would have disappeared some time ago, they say.

Canada's primary defence responsibility is to contribute to a just international order that respects the integrity of Canada, the church leaders say. Genuine security is a product of social and economic development, rather than a result of military prowess, they argue.

The religious leaders accuse the Government of rekindling Cold War enmity and proposing military solutions to political problems.

They argue that universal nuclear disarmament must become a centrepiece of Canadian security policy. But, they say, the thrust of the defence white paper is to downgrade disarmament and reconciliation as instruments of security.

The church leaders say the Government casts the Soviet Union as an eternal, unredeemable enemy. "The defence white paper's lapse into alarmist anti-Soviet Cold War

rhetoric is counter-productive to the pursuit of international reconciliation....We need realistic threat assessments as the basis for defence policy, not jingoistic depictions of enemies."

A reliable assessment of the threat confronting Canada is not provided by viewing the world as dominated by rivalry between East and West, the church leaders say. "The churches' extensive experience in working with partners in the less-developed countries of the South convinces us that some of the most urgent and intractable world security problems must be defined in North-South, not East-West terms."

The letter also calls for the demilitarization of the Arctic to prevent the area "from becoming the playground of the nuclear powers during peacetime."

The church leaders say Canada will pose a new threat in the Arctic if the Government proceeds with plans to obtain 10 to 12 submarines for about \$8-billion.

Arms Control, Disarmament Center
51200020 Ottawa THE OTTAWA CITIZEN in English
19 Feb 88 p A11

[Article by Jonathan Manthorpe, Southam News]

[Text] Canada's use of treaty loopholes to build a fleet of nuclear-powered submarines opens the way for less scrupulous nations to build nuclear weapons, says a report by a national think tank.

"If we are seen to be gutting an important arms control treaty, we are giving the message that if Canada can do it, then so can anyone," said Tariq Rauf, senior research associate with the Canadian Centre for Arms Control and Disarmament.

Centre director John Lamb said a 6-month study showed while it was perfectly legal for Canada to acquire nuclear fuel for its planned \$8-billion fleet of 10 or 12 attack submarines "this is a major departure for Canadian policy and practice."

Canada is a signatory of the nuclear Non-proliferation Treaty, which is administered by the Vienna-based International Atomic Energy Agency. The treaty is designed to curb the spread of nuclear weapons.

The centre's report says the fuel for the submarines, which could be used to make nuclear weapons, will not be subject to the agency's inspection or verification. Two sections of the treaty allow countries unrestricted use of nuclear materials for military purposes so long as uranium is not used to make weapons.

Government assessments obtained by Southam News under access to information legislation present a similar view of the treaty to that of the centre.

"The removal of enriched uranium from International Atomic Energy Agency safeguards would undercut the agency's ability to verify and reassure the international community that nuclear material was not being diverted to the production of nuclear weapons," says the report.

The report emphasizes the concern is not that Canada might make nuclear weapons from the submarine fuel.

"Rather, the fear is that other countries considered to be proliferation risks might at some point adopt the precedent of acquiring unsafeguarded nuclear fuel created by Canada, and then divert some portion of it into the production of nuclear weapons."

Lamb said he does not believe the government has made any deep study of the implications for nuclear proliferation in the submarine program. What studies there have been have "tended to look at how Canada can get fuel for its submarines rather than the arms control aspects of the question," Lamb said.

He called on the Department of External Affairs, the ministry responsible for Canada's adherence to the non-proliferation treaty, to "undertake a detailed and comprehensive review of the entire question."

Defence Department officials are now assessing proposals by French and British companies for submarine designs. The government is expected to select the winning design in June and the first submarine should be operational in 1996.

Canada plans that fuel for the vessels—they have to be refuelled every 6 to 10 years—will be provided by the country of origin.

Rauf said the British submarine requires uranium fuel that is 97-percent enriched.

/9604

More Foreign Ownership of Uranium Resources To Be Allowed

51200011 Ottawa THE OTTAWA CITIZEN in English
24 Dec 87 p D9

[Text] The federal government has put more Canadian uranium resources up for sale.

A new policy announced Wednesday by federal Mines Minister Gerald Merrithew will allow foreign interests to buy up to 49 percent of Canadian uranium mining interests.

Previous policy restricted foreign ownership to 33 percent.

Merrithew said the opportunity for increased foreign investment should encourage development and production of Canadian reserves.

The policy also allows for Canadian participation in domestic uranium developments to drop, with special cabinet approval, below 51 percent to allow domestic operations adequate "flexibility in raising capital for projects as long as they (Canadians) maintain controlling interest."

Canada is the world's largest producer and exporter of uranium.

About 85 percent of Canadian production is exported, bringing in about \$1 billion annually.

/9274

Joint Venture With Hungary To Use Slowpoke Reactors

51200016 Ottawa *THE OTTAWA CITIZEN* in English
19 Jan 88 p A4

[Article by Jonathan Manthorpe: "Slowpoke Sale Gives AECL a Lift"]

[Text] Canada is to sell dozens of its new Slowpoke mini-nuclear reactors to Hungary.

Atomic Energy of Canada Ltd. (AECL) and two Hungarian utility companies are drawing up a joint-venture agreement that will see the small 10-megawatt reactors used for urban heating systems.

Slowpoke, first demonstrated publicly last October, may also be used for the central heating systems in such large institutional complexes as universities, hospitals and office blocks.

The deal is a significant psychological victory for AECL which has been trying to diversify its business during what president James Donnelly has called a "hiatus" in demand for its large-scale CANDU reactors. The last CANDU reactor AECL sold was to Romania 10 years ago.

Construction of the first Hungarian units, which will cost from \$5 million to \$7 million each, is expected to start within three years.

Unless Canadian institutions buy the system in the meantime, Hungary will see the first working examples of this innovative Canadian technology. The Slowpoke reactor is designed to power hot-water central heating systems for buildings with a total of about 150,000 square metres of floor space—about 1,000 apartments.

The reactor core, surrounded by a water tank about six metres in diameter and 13 metres deep, is buried in the ground and requires refuelling every five or six years at a cost of some \$1 million.

A heat exchanger transfers heat from the water in the tank to the water in the central heating system.

In Hungary, most cities already have district heating systems and the Slowpoke can be installed to replace fossil fuel burners with relative ease.

Dr. Frank McDonnell, head of the reactor physics at AECL, said the advantages of the Slowpoke are that it is cheap and "there is no emission of pollutants harmful to the atmosphere."

The Slowpoke system will provide thermal energy at about two cents per kilowatt hours. This compares favorably with all fossil fuels except natural gas.

The way was opened for the sale last November when the Canadian and Hungarian governments signed an agreement for cooperation in the peaceful use of nuclear energy.

AECL has now signed an understanding with the Hungarian state power station and network engineering company, the Institute for Energetics, and the power plant investment company ERBE.

The agreement calls for the drawing up of contracts that may see the Hungarian companies acting as marketing agents for Slowpoke in Europe.

This is expected to take about a year and AECL thinks the first Slowpoke system will be operating in Hungary about 18 months after that.

/06662

Possible Privatization of Eldorado Nuclear Discussed

51200017 Toronto *THE GLOBE AND MAIL* in English
26 Jan 88 p B13

[Article by Jane Becker: "Crown-owned Eldorado Nuclear Poised for Return to Private Sector"]

[Text] Eldorado Nuclear Ltd., which has seen its fortunes soar and sag in step with world scientific and political events throughout its 61-year history, is poised for another adventure: a return to the private sector after 45 years as a Crown corporation.

"It makes fundamental sense," Eldorado chairman and chief executive L.C. Bonar said. "As a private company, Eldorado could diversify from uranium and leave its debt behind. There has been no public policy reason for having it a Crown corporation for at least the last 20 years."

Mr. Bonar was brought to Ottawa-based Eldorado from Falconbridge Ltd. of Toronto a year ago to help with the privatization, which is being overseen by Privatization Minister Barbara McDougall.

Besides the continuing public concern about the future of nuclear power, especially in the wake of the Chernobyl disaster, Eldorado's financial statements for 1985 and 1986 could leave one wondering why anyone would want to buy shares in it. Operating profits of \$64-million and \$43.7-million, respectively, in those years were wiped out by debt servicing charges, causing final losses of \$57.1-million in 1985 and \$64.3-million the next year.

By the end of 1986, the company had an accumulated deficit since 1981 of about \$156-million.

"Our balance sheet is a disaster," Mr. Bonar admitted. "We've only survived the last few years because the Government has guaranteed the debt."

While assets have grown from \$360.5-million in 1980 to about \$916-million, long-term debt is now about \$561-million. It has all been financed by foreign currency borrowings, including Japanese yen and Swiss francs, which has meant a \$240-million provision for foreign exchange losses because both currencies rose against the Canadian dollar.

But 1987 was a turnaround year. The company produced and processed record quantities of uranium, increasing production by about 51 per cent to 7.96 million pounds, making it North America's largest uranium producer.

Sales reached a record \$355-million, compared with \$202-million in 1986. Although debt servicing cost about \$100-million, the company expects a final profit of about \$2.5-million when final figures are audited.

Eldorado's shares are held by Canada Development Investment Corp.—its only sizeable holding in a portfolio that once included Teleglobe Canada of Ottawa, Canadair Ltd. of Montreal, and de Havilland Aircraft of Canada Ltd. of Toronto. All have been sold to private investors.

Eldorado, Mr. Bonar believes, could be a private company by the end of this year. But a necessary first step is a merger with the more profitable Saskatchewan Government-owned Saskatchewan Mining Development Corp. of Saskatoon, Eldorado's chief partner in the rich Key Lake Mine in the northern part of that province.

William Gibson, president of the Crown Management Board in Regina, the Government agency that holds the SMDC shares, would say only that discussions between his Government and Ottawa about a merger have been going on since at least mid-1986.

Mr. Bonar sees a merger as an opportunity to rationalize the mining, processing and marketing of some of the world's lowest-cost highest-grade uranium deposits.

Instead of competing on prices, now at a record low of about \$23 a pound, he said the new company, with assets of close to \$2-billion, would have much more control over pricing.

The merged company could also diversify into other minerals—SMDC already gets some revenue from a gold mining operation at Star Lake, Sask.—to cushion it from the uncertainties of the world uranium market.

But there are many details to work out first. The major one is how to deal with the two companies' debt—a total of close to \$900-million. If they leave it behind when they privatize, the governments concerned must pay it off, either with money from the sale of shares, or from general revenue.

It has been suggested that the Saskatchewan Government may want to retain some interest in SMDC, which paid it a \$15-million dividend out of 1986 profit and will pay at least that much from 1987 final profit of about \$60-million.

Even the head office location is up in the air. It could be Toronto, Montreal, Saskatoon or Regina, "but certainly not Ottawa," Mr. Bonar said.

Privatization is hardly a new idea at Eldorado, which was a private company until the Canadian Government bought it in 1942 in order to control wartime uranium supplies.

By the 1960s, uranium markets were depressed and the Government kept Eldorado going by buying up uranium for its stockpile, fueling the company with production loans. Not until the late 1970s did the nuclear energy program of Ontario Hydro—and some CANDU reactors abroad—require enough fuel to set Eldorado on course, but it remained a small, marginally economic operation until 1980, when management proposed a \$500-million expansion program and the Government gave the go-ahead, provided the money was borrowed outside Canada.

The borrowings financed exploration for reserves, which have increased by 50 per cent since 1982, and the building of refineries at Blind River and Fort Hope, Ont., to upgrade uranium concentrate for sale to electrical utilities in various parts of the world.

In a merged company, SMDC will gain Eldorado's processing facilities and Eldorado will get a stake in SMDC's Cigar Lake property in Saskatchewan—the largest high-grade uranium deposit in the world. The new company will be free to diversify, raise money any way it likes and, if the governments take over its debt, may even pay dividends to shareholders.

At present production levels, it would supply about 40 per cent of Canada's uranium, and 14 per cent of the Western world's supply of about 95 million pounds annually.

But a question is whether the U.S. market for Canadian uranium, which now accounts for about half of Eldorado's revenue, will stay firm. U.S. uranium processors have recently proposed tariffs on Canadian-enriched uranium, and a U.S. court ruling, now being appealed, would prohibit the enriching of foreign uranium in the United States in order to protect the domestic industry.

Mr. Bonar said a clause in the Canada-U.S. free-trade agreement exempts Canada from this prohibition, however, and would override any court decision. In return, he said, Eldorado persuaded Canadian negotiators to allow unprocessed Canadian uranium into the United States, contrary to Canadian Government policy of processing domestically when possible.

/06662

Essex County MP's Appeal for Shutdown of Detroit's Fermi II

51200019 Windsor *THE WINDSOR STAR* in English
3 Feb 88 p A10

[Article by Paul McKeague: "MPs Demand Fermi II Shutdown"]

[Text] Ottawa—Essex County's four MPs put aside political differences Thursday to issue a joint appeal to the U.S. Nuclear Regulatory Commission (NRC) to overturn its decision to allow the Fermi II nuclear plant to operate at full power.

The members of Parliament attempted to turn local concerns about the plant into a national issue, as they publicized their appeal at a press conference in the National Press Theatre.

"In a week of political scandals here's a real scandal where people's lives are at stake," said MP Steven Langdon (NDP—Essex-Windsor).

About 10 media representatives from organizations including The Canadian Press, CBC and Global television network attended the news conference. A simultaneous televised transmission of the proceedings was followed by other reporters from organisations like United Press International and The London Free Press.

One by one, Langdon, MPs Howard McCurdy (NDP—Windsor-Walkerville), Herb Gray (Lib—Windsor West) and Jim Caldwell (PC—Essex-Windsor) outlined their concerns about the troubled plant outside Monroe, Mich., 10 km from Malden Township.

It has been plagued by mishaps, fines, shutdowns and personnel and management problems. Doubts have also been raised about its basic design.

The 11-page appeal mailed Thursday to the NRC's head office in Washington calls for Fermi's operating licence to be revoked and demands that Detroit Edison be required to prove to the satisfaction of both NRC and Canadian authorities that it is "absolutely safe" to operate its plant.

The appeal cites NRC documents completed about the time Fermi was permitted to go to full power. The documents relate continuing problems in the plant's operation, Gray noted.

Fermi was granted permission to reach full power on Jan. 15 in a letter by A. Bert Davis, the NRC regional administrator in the midwest. The letter says the plant has shown a "positive trend toward improved performance."

But it adds: "Significant work and effort on your part is still required to become a good performer."

The petition argues that comment alone indicates that Davis made the wrong decision.

/06662

Vancouver Council Rejects Nuclear-Armed Warship Ban

51200018 Vancouver *THE SUN* in English
3 Feb 88 p A10

[Article by Kevin Griffin: "Nuclear-armed Warship Ban Rejected"]

[Text] After more than five hours of debate from 30 speakers, city council defeated a proposal early today that would have resulted in the banning of nuclear-armed warships from Vancouver's harbor.

Council heard from speakers both for and against a proposal that would have resulted in a request from the city to Ottawa to declare the harbor a nuclear-weapons free zone.

After speakers from the city's peace committee, the military, local peace groups and religious organizations, Ald. Libby Davies, Bruce Eriksen and Carole Taylor were the only council members who supported the motion. Only five of 30 speakers urged council to defeat the motion.

Cmdr. Roger Sweeny, who spent 32 years in the Canadian navy, waved a copy of his home insurance policy exempting claims on losses caused by a nuclear incident as he tried to sway council to support the motion.

"I support the recommendation because I am concerned that too many Vancouverites for too long have been kept in the dark about a gigantic problem that could develop in the harbor," he said.

Trying to counter suggestions that highly sophisticated safety devices render accidents involving nuclear weapons virtually negligible, Seenen said: "In my experience, nothing is totally sailor-proof."

A fire on one of these ships, he said earlier, could release deadly plutonium into the atmosphere with disastrous consequences.

But Capt. Brian Beckett, commander of Canadian Forces Base Esquimalt, said the US Navy has had 300 nuclear-capable ships in commission for 20 years, representing more than two months ship days without any instances of nuclear weapons accidents releasing contamination into the environment.

He said a nuclear warhead could emit radiation into the environment if the high-protected magazine containing the warhead was struck with a 227-kilogram missile, the warhead's casing melted down and the ship then virtually burned to the waterline.

Beckett said that scenario has never happened to any NATO ship.

"While it is possible to imagine a scenario that could put some persons at risk, the probability of that scenario is very, very, remote," he said.

After the speakers finished, council began debating the issue and finally voted shortly before 1 a.m.

Calling a motion to ban warships a "gesture of discourtesy," Ald. Gordon Price said the arguments presented by various peace groups were not persuasive enough to convince him to vote to ban warships capable of carrying nuclear warheads from the harbor.

"I don't think this issue is a serious question of risk" he said, before pointing out that nearly 36,000 train-loads of hazardous goods annually pass through the area.

The U.S. Government has a policy of neither confirming nor denying that its warships, whose visits to the port have sparked many protests, have nuclear weapons on board.

Dr. Thomas Perry, member of the city's peace committee, said vessels carrying nuclear weapons are a danger to the city because in the event of a fire or accident involving a nuclear weapon, plutonium could be released into the environment.

He said while the number of such accidents aboard naval vessels is unknown due to military secrecy, he quoted a U.S. nuclear agency that said accidents have occurred which released radioactive contamination because of fire or high explosive detonation.

/06662

HONG KONG

Continued Participatin in IAEA Foreseen After 1997
51400005a Hong Kong SOUTH CHINA MORNING
POST in English 27 Jan 88 p 2

[Text] Hongkong will continue to participate in the activities of the International Atomic Energy Agency (IAEA) after 1997.

This was agreed at the end of a two-day meeting of a standing sub-group of the Sino-British Joint Liaison Group.

The British team leader of the JLG sub-group on international rights and obligations, Mr Fred Burrows, said yesterday that both sides had "achieved identical views" on three subjects including IAEA, but declined to elaborate on what these views were.

The Vienna-based IAEA was set up in July 1957 to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world and to ensure that assistance provided by it or under its supervision was not used to further military purposes.

At present, Hongkong does not have full membership on the atomic agency but participates under the auspices of Britain. For instance, Mr John Wilson, Principal Assistant Secretary for Economic Services, who was one of the British experts at yesterday's sub-group meeting, attended a recent IAEA meeting as a member of the British delegation last September.

This arrangement is expected to be transferred to China after 1997.

Mr Burrows said agreement had also been reached on Hongkong's future participation in the Western Pacific's regional activities of the World Health Organisation (WHO) and the International Hydrographic Organisation.

A Chinese expert on nuclear affairs, Mr Li Yesha, Deputy Division Chief of the Foreign Affairs Bureau at the Ministry of Nuclear Industry, joined the discussions yesterday.

Both Chinese and British team leaders, Mr Sun Yanheng and Mr Burrows, declined to provide details of the agreement.

The sub-group meetings, originally scheduled for three days, were held at Victoria Barracks in the Queensway.

07310

PCR Nuclear Experts To Discuss Daya Bay Here
51400004b Hong Kong HONGKONG STANDARD in
English 20 Jan 88 p 3

[Text] A delegation of eight Chinese nuclear experts left to visit Britain and France on Sunday to learn how to supervise and manage the Daya Bay nuclear power plant.

The power station, China's biggest-ever joint venture, is about 50 kilometers northwest of Hongkong. It is being constructed with French reactors and British turbines.

The delegates will visit nuclear power stations in Britain and France where they will be briefed on management techniques over a three-week period.

It is reported the delegation will stopover in Hongkong and meet Royal Observatory officials about the future management of the plant.

Local protestors have always been suspicious of future Chinese management of the plant. Their criticism appeared justified when builders of the \$28.7 billion project discovered 316 steel reinforcing bars had been left out of the reactor base.

07310

Local Officials Comment on Daya Bay Fatal Accident

51400004a Hong Kong HONGKONG STANDARD in
English 16 Jan 88 p 1

[Article by Fan Cheuk-wan]

[Text] Officials are today continuing their investigation into the first major industrial accident at the Daya Bay nuclear plant site which killed three men earlier this week.

The three Chinese workmen died when a tower crane collapsed while being assembled at the work site, the joint venture company building the two reactors said yesterday.

It was the second major problem on the new construction site. It followed a blunder last September when builders left 316 of the 576 reinforcing bars out of a reactor platform.

The accident happened on Tuesday morning but was not announced by the Chinese-owned Guangdong Nuclear Power Joint Venture Company (GNPJVC). The builders only confirmed it yesterday after news of the tragedy was leaked to Hongkong newspapers.

"The cause of the accident is still being investigated," said Mr Dominic Tai, the public affairs manager for the Hongkong Nuclear Investment Company (HKNIC), the Hongkong-owned and 25 percent partner in the joint venture company.

Mr Tai had little further information about what caused the accident and who might be responsible. He could not identify the dead men or the victim who was seriously injured. But he confirmed the injured man was receiving treatment in a Shenzhen hospital.

He explained the NKNIC was only given sketchy information on the accident by GNPJVC on Wednesday.

HKNIC yesterday called for a preliminary report of the accident from Shenzhen, getting the first official confirmation from GNPJVC.

The twin 900 megawatt nuclear reactors are being constructed for GNPJVC by a four-nation consortium, the HCCM, which comprises Hua Xin Construction Company of the Chinese Nuclear Industry Ministry, Second Bureau of the China State Construction Company, Campeon Bernard of France and Maeda of Japan.

"An investigation into details of causes of the accident is being carried out by the Shenzhen Government authority, the HCCM and the joint venture company," Mr Tai told THE STANDARD.

But he was not sure whether the investigation report would be open to Hongkong people, as the joint venture company had its own system of management.

GNPJVC officials were not available for comment.

A spokesman for the Joint Conference for the Shelving of the Daya Bay Nuclear Project, the Reverend Fung Chi-wood, said he really doubted if true facts about the accident would be released to the public as the investigation was only carried out by "interested parties".

07310

JAPAN

Uno, Nuclear Energy Head Discuss Safety

51600020 Tokyo KYODO in English
0502 GMT 15 Feb 88

[Text] Tokyo, 15 Feb (KYODO)—International Atomic Energy Agency (IAEA) Director General Hans Blix and Japanese Foreign Minister Sosuke Uno on Monday shared the view that nuclear power is a safe and very clean source of energy, Foreign Ministry officials said.

Blix, a Swedish national, told Uno that human errors cause half the accidents at atomic power plants, said officials who briefed reporters about the meeting of the two men.

The IAEA head called for all foreign ministers of the world to acknowledge that nuclear power is a clean energy source that does not pollute the environment, they said.

Uno, agreeing with Blix, said power plant operators in his country wear excessively protective work clothes to impress the Japanese people that atomic power is dangerous, the officials said.

Blix has been in Tokyo since Sunday on a 4-day visit to attend the International Conference on Man-Machine Interface in the Nuclear Industry, a 6-day meeting in Tokyo that began Monday.

An estimated 600 experts from 20 countries attended the conference, which covers how operators and machinery should interact to improve safety at nuclear power plants.

/9604

IAEA Director Addresses Issue of Safety

51600025 Tokyo KYODO in English
0602 GMT 15 Feb 88

[Text] Tokyo, Feb. 15 Kyodo—International Atomic Energy Agency Director General Hans Blix on Monday called for improving nuclear safety by reducing human errors at atomic power plants.

Blix, speaking at the opening of an international meeting here on nuclear plant safety, said human error is a factor in about half of all accidents worldwide at such power generating sites.

"Greater public acceptance of nuclear power will depend on whether we can avoid serious accidents for an extended period of time," Blix said at the conference on man-machine interface in the nuclear industry.

Improving the relationship between plant and equipment design and human operators could improve operation safety at the nearly 400 nuclear power stations worldwide, the former Swedish foreign minister said.

He noted that plants with excellent performance records also tend to have better safety records.

Hideo Uchida, chairman of Japan's Nuclear Safety Commission, told the 400 or so nuclear experts from 29 countries that human operation should be reduced as much as possible in favor of automation.

Improved training for plant operators and the use of simulators, are needed to respond to unexpected incidents, Uchida said.

Kunikazu Misaka, deputy director general of the Agency of Natural Resources and Energy, said that while mechanical reactor failures at Japanese nuclear plants have decreased from four cases per year in 1971 to 0.6 cases annually since 1984, failures caused by human error remain about the same.

"Human misses that account for about 20 percent of all incidents and failures (in Japan) are not few enough," Aisaka said in a conference paper.

Fifty-four percent of the 41 operator misses from 1969 to 1986 led to automatic shutdowns of nuclear reactors and 15 percent led to power reductions, he said. The remaining 32 percent had no effect, Aisaka reported.

The six-day conference is sponsored by the IAEA in cooperation with the Japanese government and two international sponsors.

07310

Agency Studies Operation on Nuclear Plants
51600026 Tokyo KYODO in English
0934 GMT 14 Feb 88

[Text] Tokyo, Feb. 14 Kyodo—The Agency of Natural Resources and Energy has begun studying the possibility of allowing Japan's nuclear power plants to operate

continuously for a period of 15 months instead of the current 13 months in order to reduce generating costs, agency sources said Sunday.

The agency, affiliated with the Ministry of International Trade and Industry, is likely to extend the current maximum successive operation period within this year upon getting confirmation on safety, they said.

Electric power industry leaders say the change would be beneficial since there is only a two yen difference per one kilowatt/hour between the cost of nuclear power and those of coal and oil power following the yen's appreciation and crude oil price cuts.

The generation cost of nuclear power plants per one kilowatt hour is around 9 yen, while that of coal power plants is 10 to 11 yen and oil presently around 11 to 12 yen.

The utilization rate of Japanese nuclear power plants hit a record 79.5 percent last year and the extension of continuous operation would help improve efficiency and output, the sources added.

07310

BRAZIL

CNEN, Nuclebras Both To Continue Enrichment Projects

51002015b Sao Paulo GAZETA MERCANTIL in Portuguese 19 Jan 88 p 16

[Text] The National Nuclear Energy Commission (CNEN) and Nuclebras will continue to develop their uranium enrichment projects, different from each other, but with similar objectives, at least until next year. This was the conclusion reached by the president of CNEN, Rex Nazare Alves, and the president of Nuclebras, Licinio Seabra, at the first meeting organized to define the future of the country's enrichment industry.

Nuclebras works at enrichment with the use of a process of jet centrifuge at its industrial complex in Resende, while CNEN works with an ultracentrifuge process in Sao Paulo. "Given our present phase, it would not make sense to interrupt the jet centrifuge process," said Seabra yesterday to this paper. Hence, the decision at this meeting—which is not definitive—to work a bit more at the development of the two technologies. Next year, the programs will be reevaluated.

At the end of 1987, CNEN had reached a level of 1.2 per cent enrichment using the ultracentrifuge process coordinated by CNEN, and having no connection with the "official" nuclear program being carried out by Nuclebras. Since the state company had already reached an enrichment level of 0.85 per cent, the two presidents decided to analyze the complementarity of their projects, as they involve some millions of dollars. The Nuclebras project, for example, has already cost \$350 million, and will require another \$700 million in order to reach an enrichment level for its uranium of 3.2 per cent, the level required by Brazilian plants.

12857

Twenty Percent Enriched Uranium To Be Produced by June

51002016 Sao Paulo GAZETA MERCANTIL in Portuguese 5 Feb 88 p 15

[Text] By the end of June, Brazil will be producing uranium enriched to 20 percent through the process of ultracentrifugation, the unit for which is being installed in Ipero municipio in the interior of Sao Paulo. The information was provided to GAZETA MERCANTIL on 4 February by Claudio Rodrigues, superintendent of the Institute for Energy and Nuclear Research (IPEN) of the University of Sao Paulo (USP), the organization responsible for the development of ultracentrifuge technology in the country.

That enrichment level, which will be achieved with the operation of more than 100 centrifuges, will be above that necessary for the utilization of the uranium in the reactors installed in the country (a minimum of 3.2

percent) but will be below the 80 percent required for the use of the uranium in military activities. A higher enrichment level, however, will be achieved later since, according to Rodrigues, the project following this unit is the construction of a reactor to make viable a naval propulsion program which, he said, would only be ready in 10 years. According to Rodrigues, the fuel produced in the Ipero plant will supply the IPEN reactor which currently produces 60 percent of the entire domestic demand for radioisotopes for use in approximately 2,000 clinics, hospitals and laboratories in Brazil. The balance for supplying the entire market is imported from Canada and processed in IPEN. With the fuel from Ipero, the IPEN reactor will be able to operate full time, meeting 100 percent of the need for radioisotopes and eliminating the dependence on imports.

The limitation of the Brazilian production of radioisotopes is due to the lack of enriched uranium, the imports of which ceased in 1978. According to Rodrigues, there is an international boycott against supplying the fuel to Brazil because Brazil is not a signatory of the nuclear weapons non-proliferation treaty.

The fuel which currently supplies the IPEN reactor is what is left from the enriched uranium imported from the FRG in 1978. That fuel, approximately 20 kilos of enriched uranium, is sufficient to keep the reactor operating for 3 more years, according to Rodrigues. Even so, IPEN has been reducing the rate of the reactor's operation to extend the time of the use of the fuel.

According to the IPEN superintendent, the civil construction portion of the Ipero plant is "practically concluded" internally and externally, with only the final installation of the equipment and accessories remaining to be done. The construction corresponds to three installations: one for the uranium enrichment centrifuges, one for the testing station of the steam components and the third for the construction of centrifuge components. Rodrigues said that in addition a low power nuclear reactor will be constructed. The investment projected for the unit, at the time of the announcement of the beginning of the Ipero construction, was roughly U.S.\$20 million. Rodrigues did not divulge the exact amount.

/9604

Sabola Seeks To Allay Local Concern over Aramar Project

51002015a Sao Paulo O ESTADO DE SAO PAULO in Portuguese 5 Feb 88 p 2

[Text] In July of this year, the Brazilian Navy will take delivery of the first of a series of four conventional submarines that the country is building using nuclear technology. The submarine is of the IKL 209 1400 class, and is being completed at a German shipyard with the participation of Brazilian technicians. The other three

will be built at the Navy shipyard in Rio de Janeiro, and the last of them will be fitted with a nuclear reactor developed at the Aramar Experimental Center in Ipero, Sorocaba.

Once the construction phase of the submarines has been completed, the Navy will begin the construction of Brazil's first nuclear submarine, already completely designed, and its construction will be 100 per cent domestic. This information was provided to Sorocaba newspapers in Brasilia by the minister of the Navy, Adm Henrique Saboia, as he was questioned about the Aramar project. The project is under development in the town of Ipero, and has been a matter of concern to the community because of nuclear issues.

Saboia sought to allay the concerns regarding any risks associates with the Aramar project, assuring that the reactor to be installed at Ipero to test the submarine's nuclear reactor will be one of the safest in the world. The minister guaranteed that there is no thought being given

to the production of nuclear arms at the Experimental Center, emphasizing that it is the government's intention to use nuclear technology only for peaceful applications

Admiral Saboia believes that the present resistance movement in Sorocaba against the Aramar project "has been organized by individuals who have other motives," and he underlined the fact that no country is happy about the fact that Brazil has developed a mastery of a technology as sophisticated as nuclear technology. Saboia said that the Navy has not set a deadline for producing the first nuclear submarine. According to him, the phasing of the various stages will be determined by budgetary considerations, and no compromises will be made with regard to safety.

In Sorocaba, the protests against the Aramar project continue. A group of students traveled to Brasilia this week in vehicles given by the mayor's office so as to maintain contact with congressmen who want to prohibit nuclear programs in Brazil.

12857

INDIA

'Constant Vigil' on Pakistani Nuclear Issue *BK170945 Delhi Domestic Service in English* 0830 GMT 17 Mar 88

[Text] India has made it clear to Pakistan that its relentless pursuit of acquiring nuclear-weapon capability will completely change the security environment in the region and force India to review her option. This was stated by the minister of state for external affairs, Mr Natwar Singh, in the Rajya Sabha today.

Replying to a short-notice question, the minister said that India is maintaining a constant vigil on this as well as other developments having a bearing on the country's security. The short-notice question was raised by Mr Kapil Verma, Congress-I, who drew the government's attention to a recent report in THE NEW YORK TIMES that Pakistan has acquired the ability to make sophisticated and smaller nuclear bombs, which can be carried on F-16 and Mirage planes.

The minister said the government is aware of Pakistan's single-minded drive to acquire a nuclear weapons capability. India's apprehensions regarding the nonpeaceful dimensions of Pakistan's nuclear program have been brought to the notice of all concerned.

Paper Chides Reagan's Policy on Pakistan *BK271145 Bombay NAVBHARAT TIMES in Hindi* 18 Jan 88 p 4

[Editorial: "Thank You Reagan"]

[Text] Although India never had any illusion about the sweet US-Pakistan relations, the way in which the US President has lifted the restrictions imposed by the Symington and Solarz amendments in favor of Pakistan should remove all question from the minds of those who still wanted to give the "benefit of the doubt" to the United States that Reagan, in fact, would not refrain from patronizing Pakistan and that he would not play a divide and rule game in South Asia. The US State Department's assessment is that it is imperative to extend assistance to Pakistan because of the immense US concern for Pakistan's national security.

It is saying this now when it knows that a Philadelphia court has indicted Arshad Pervez, a Canadian citizen of Pakistani origin, for stealing nuclear technology for Pakistan last August. Under the Symington and Solarz legislation, no US aid can be given to any country suspected of manufacturing nuclear weapons. It has been proved in the US court itself that Arshad Pervez was sending nuclear technology to Pakistan. Recent reports from the FRG also confirm that Pakistan was receiving enriched uranium from there for the manufacture of nuclear weapons. Under the pretext of promised high technology and a supercomputer for India, the United States wants to equate India with Pakistan.

The US President can only lift restrictions imposed by the Symington and Solarz amendments with an assurance that the national security of the country in question is threatened. Now what will happen is that Pakistan will be able to get AWACS and Hawkeye aircraft along with many of the most modern and sophisticated weapons. The irony is that the lifting of the Symington-Solarz restrictions amounts to an admission that Pakistan either has nuclear weapons or is on the threshold of building one. Now the question arises as to whose national security is being threatened—India's or Pakistan's?

It is natural that President Reagan's decision has made the Pakistani authorities delirious. On the one hand, the Soviet Union has promised to leave Afghanistan, while on the other the Reagan certificate of good moral character has opened the doors for a continuing flow of record amounts of assistance. Pakistan may say that it neither possesses nuclear weapons, nor has the program to make one. However, so much evidence has come to light against such assertions that no sane country would believe what Pakistan says. Pakistan's top nuclear scientists have claimed in the past that Pakistan is only a screwdriver's turn away from making the bomb. Even before Arshad Pervez's arrest, another Pakistani had been arrested in the United States in 1984 for trying to steal banned nuclear materials.

Anyway, the CIA itself would be fully aware of Pakistan's nuclear program. Whatever assistance the United States may throw into India's bag, it is clear that the United States has special relations with Pakistan. Moreover, it is also evident that the United States is unhappy with India's natural leadership role in South Asia. Soviet withdrawal from Afghanistan is a very good thing, but it is going to create new problems for India. A nuclear race is a dangerous exercise in which both rivals will be destroyed. But now India has to ponder whether to nip in the bud Pakistan's venomous designs before they are hatched or to strengthen its offensive capability and vigilance to such an extent that the ambiguous neighbor has no courage to cast an evil eye upon it. By lifting the Symington-Solarz restriction, Reagan has, perhaps, done India good. Now we have to think like adults.

Aid to Pakistan Nuclear Program Criticized *BK211519 Delhi General Overseas in English* 1010 GMT 21 Jan 88

[By political commentator S.C. Bhatt: "Nonproliferation Mocked"]

[Text] American agencies are known to be well informed about what goes on in the rest of the world. The mighty CIA and several research foundations in Washington long ago came to the conclusion that Pakistan is only a screw driver turn away from the bomb. Some of these knowledgeable people also told us that Pakistan has a bomb in basement. When we in the outside world could

get an inkling of what the American agencies had found out, one can be sure that the privileged people in Washington must have known the truth, the whole truth, and nothing but the truth.

To put any lingering doubts in the White House at rest, Pakistan provided unwittingly, of course, irrefutable evidence of its nuclear weapon program. A Pakistani with a Canadian connection, Arshad Pervez, was caught by the American investigating agencies on American soil in the act of stealing nuclear weapons-grade steel from the United States. As his trial proceeded, Capitol Hill, the seat of the American Congress, went through the motions of stopping the flow of massive American aid—economic and military—to Islamabad. The Reagan administration also made some noises. After all, what was happening right on the American soil could not be wished away even if it concerned a close military ally and a guardian of American interest in the Gulf like Pakistan.

Then the State Department in Washington dutifully placed the Pervez file before the President. Pervez had in the meantime been convicted by a federal court in Philadelphia of the offenses he was charged with and was awaiting sentence which could mean anything from 15 to 35 years in prison. The U.S. State Department told Mr Reagan in the plainest terms a diplomatic outfit could employ that it was not merely a case of smuggling by an unfortunate Arshad Pervez. He was only a front man for Islamabad, which needed the materials for its bomb project.

The Pakistani nuclear weapons program has been built on the solid foundation of stolen designs and smuggled fuel. Thanks to the average of American and West European supplies or the lethargy or connivance of the administrations in these countries, this stealing and smuggling has gone on for a long time.

Recently, some shocking information has come from West Germany in this connection. Not surprisingly, Mr Reagan ignored the State Department's note to him and signed waivers of his country's laws banning aid to nations engaged in the dangerous game of making the bomb. Quoting overriding national security interests, the American President signed the waivers and gave the green signal for the flow of economic and military aid to Islamabad. Mr Reagan virtually said: I see no evil. I hear no evil.

On top of a recently concluded 6-year aid package, Washington has now begun yet another 6-year aid program amounting to more than \$4 billion to a country which faces no real threat from any quarter. Its military build-up is only to hold out a threat to India, its next door neighbor. The bomb project is likewise meant to intimidate India. The Pakistani ruling elite for all its

(?provocations) and sophistry is all the time motivated by the urge to settle scores with India for the role this country played in the liberation of Bangladesh more than 16 years ago.

Bangladesh, then a part of Pakistan, had revolted against the terrible repression let loose by the military regime of General Yahya Khan in Islamabad. Instead of realizing the folly of their ways, the rulers in Islamabad have blamed India for the dismemberment of their country. They have aided and abetted the terrorists in Punjab for the same reason of wreaking vengeance on this country.

Pakistan's military build-up, free of cost for Islamabad, thanks to American generosity, imposes a heavy burden on India. New Delhi has to spend the hard earned money of the Indian people to keep itself in good trim to face any military adventure from across the border. The nuclear bomb project of Pakistan likewise strains India's peaceful nuclear program. Since 1974, when India exploded a nuclear device, there has been no explosion, and India has persisted with the peaceful applications of nuclear energy and built up a major nuclear base.

Washington has been repeatedly told of India's concerns. It has also been told of the danger of aiding and abetting the nuclear designs of a regime bent on revenge and hegemony. Washington has also been reminded of its nuclear nonproliferation professions.

The Reagan administration has thrown all these professions to the wind, closed its eyes to the evidence produced by its own State Department, and ignored India's concerns. In the name of America's national security half way round the globe, Washington is giving massive economic and military aid to Pakistan and, thus, is aiding and abetting President Ziaul Haq's nuclear bomb program.

PAKISTAN

Junejo Calls Nuclear Power Indispensable
51004720 Islamabad THE MUSLIM in English
29 Jan 88 pp 1, 8

[Article by Saeed Qureshi]

[Text] Islamabad, Jan. 28: Prime Minister, Mohammad Khan Junejo said today that hard pressed by acute energy shortage and inadequacy of indigenous conventional resources to meet the growing demand, Pakistan has developed a long term programme for nuclear power.

The Prime Minister who was speaking at the inaugural session of the three-day international seminar on 'Petroleum for the Future', said that Pakistan was tapping all its available resources of oil and gas but because they were limited Pakistan has to explore and develop renewable resources.

He announced that a petroleum policy, whose broad outlines have been prepared, would soon be announced. Mr. Junejo said that by the year 2000 when Pakistan's population was expected to be 150 million Pakistan would need 20,000 MW power and by exploitation all the existing power generating resources, it would still face a gap of 8000 MW.

This gap, he emphasised, could be bridged only by turning to nuclear power "which is both cheap and renewable."

Mr. Junejo argued that with its limited financial resources, Pakistan was not in a position to embark upon large scale petroleum exploration programmes. We have, therefore, opened our sedimentary areas to foreign companies."

Despite the fact that 29 such firms were operating in Pakistan to find oil Pakistan could not wholly depend upon petroleum alone because it was a 'finite' resource.

The Prime Minister said that he was not "flamboyant" nor 'leading his people to garden path' but was committed to meet the present development needs of the people besides laying a solid foundation for the future progress.

Defining the people of Pakistan as the visionaries' Prime Minister Junejo said that these people not only had worked for a modern Pakistan but also had the will to realise their goal.

He said that the import bill on oil was heavily undermining Pakistan's development programme.

During the year 1986-87 alone Pakistan imported crude oil and petroleum products worth 803.6 million dollars which was around 22 per cent of the total foreign exchange earnings.

He stressed that 'if we do not increase our indigenous capability to produce more oil our import bill will keep on rising with the growth of demand.'

Pakistan, he said, met only 25 per cent of its oil requirements from local resources while remaining 75 per cent had to be imported which was a heavy burden on the economy.

He said that since independence Pakistan's energy consumption had increased four times, while it was still considered one of the poorest countries in both energy consumption and availability of energy resources.

He said that Pakistan's energy requirement was increasing at a rate of 8 per cent and in view of the projected increase in oil price of 25 dollars per barrel by 1990, the country had no option but to fall back upon the nuclear power which he said was the only viable option.

APP ADDS: Mr. Junejo said 'my motto is daydreaming, no.... vision yes.' "Personally I am not cut out for flamboyance, for making flashy promises for leading people up the garden path" the Prime Minister told the gathering which included local and foreign delegates. "I want to keep my own feet as well as those of my people firmly on the ground, though with their gaze fixed on the horizon beyond, the horizon of a bright and brilliant future," he said.

The symposium, aimed at bringing together the best expertise from within and abroad to help prepare a viable strategy for the development of energy sector has been organised by the Ministry of Petroleum and Mineral Resources and co-sponsored by the U.S. Agency for International Development and Friedrich Ebert Foundation of West Germany.

Mr. Junejo said his government had made a modest beginning towards achieving the vision of a prosperous and modern Pakistan. It was its endeavour to give the underprivileged countrymen a taste of a better and enriching life.

A quite but perceptible change he said, was taking place all over rural Pakistan, the real Pakistan. 'We have set the caravan moving' the Prime Minister said, adding "I say to my people join it and move forward."

There was no other economic option but to turn towards nuclear power. That was why Pakistan had developed a long-term nuclear power programme, Mr. Junejo said nothing that nuclear power generation costs were competitive with those of power from an oil-fired station even at the current low prices of oil. Experts agreed that the slump in the oil market was transitory phenomenon and the oil prices would touch 25 dollars per barrel by 1990, he pointed out.

Mr. Junejo hoped that the symposium would throw up new ideas to accelerate the pace of energy development in Pakistan and said, "we fully realise that the key to our development lies in the abundant supply of cheap energy."

Earlier presenting an address of welcome Chaudhry Nisar Ali Khan said that the current daily production of 47000 barrels a day had increased three-fold since the beginning of the sixth plan period now 25 per cent of crude and petroleum products are met by domestic production as against 10 per cent at the beginning of the sixth plan.

He said the crude oil bill has gone down from 923 million dollars in 1983-84 to 614 million dollars in 1985-86. Discovery is being made for every two point two wells drilled. This is remarkable because drilling density is low. Recent discoveries at Chak Haurang in the Potwar and Lashari South and Thora in Sind are likely to contribute 3000 to 4000 barrels a day.

/08309

Former Official on Nuclear Energy Needs
BK041019 Delhi Domestic Service in English
0830 GMT 4 Mar 88

[Text] A former Pakistan Atomic Energy Commission chief, Dr I.H. Usmani, has refuted the Pakistan Government claim that it needs nuclear technology to meet its

energy requirements. Speaking to newsmen in Karachi, he said the country has got the potential to produce 20,000 megawatts of hydroelectric power from the Indus Basin tributaries. Dr Usmani also strongly opposed the Chashma nuclear project and said it could be a high earthquake risk. He advocated setting up of solar energy-based projects.

Militiamen Deal With Mishandling of Radioactive Substances

18000205a Moscow KOMSOMOLSKAYA PRAVDA in Russian 16 Jan 88 p 2

[Article by N. Savelyev, KOMSOMOLSKAYA PRAVDA correspondent in Krasnoyarsk: "A Special Case: A Source of Danger"]

[Text] On 10 November—Soviet Militia Day—Svetlana Aleksandrovna Anufriyenko, a senior inspector with the Krasnoyarsk Gorispolkom's Internal Affairs Administration, opened a new case. Her holiday mood faded as she began reading the contents of the slim file. She had never had a case like this in her nine years of service in internal affairs organs. It was unlikely that her colleagues with 20 or 30 years of service behind them could help her: they had never indicted anyone under the section of Article 217 of the RSFSR Criminal Code which deals with penalties for violations of the regulations and standards pertaining to the storage of radioactive substances.

The commotion began at that moment, and it peaked when a group equipped with Geiger counters appeared in the courtyard of School No 68. Classes were dismissed and all approaches barricaded; a short time later an ampoule containing a radioactive element was unearthed. The city could not immediately be convinced that the tiny (14 millimeters) ampoule had had absolutely no harmful effect. Only after reassuring articles were published in the kray press did the commotion subside. The school had been very fortunate: the object had not fallen into the hands of curious children, remaining instead in the ground, hermetically sealed. In the days that followed similar ampoules were quietly found and removed from the grounds of a combined fodder plant and a wood processing plant. Once again, luck was with the city's residents—the ampoules were intact. Their deadly radiation had not escaped.

Ten days after the investigation began I interviewed the senior investigator. The files, which she produced from a safe, were still as slim as ever. The investigator did not attempt to conceal either the complexity or the unusual nature of the task facing her. All speculation concerning possible owners of the ampoules had gone nowhere and seemed about as useful as reading tea leaves. The only clear lead related to the ampoule found at the wood processing plant, where at one time shipments of imported machinery containing radiation sources had been received. Most likely carelessness had been the reason that those radiation sources were disposed of outside of the shop. The case of ampoule No 201—the one found in the schoolyard—was more complicated: it was a source from a radioisotope device. Such sources (which are quite harmless, as long as proper handling procedure is followed) are so widely used in the economy today that it would probably be easier to list those enterprises at which they are not present.

"There are plenty of puzzles remaining," said Svetlana Aleksandrovna. "And that is not surprising. Up until 1980 radiation sources were shipped to enterprises essentially without any notification of either the sanitary and epidemiological station or the militia. There was no strict monitoring or directives to ensure that they were handled safely. Previously there was also no one responsible for seeing that monitoring was carried out. It is possible that the ampoules we found were shipped to enterprises 10 or even 20 years ago. The experts are trying to give us an answer, but I do not know what they will come up with. Currently, at least, neither the engineers of Installation and Setup Section No 85 nor representatives of the interblast office of Izotop, which jointly supervise the installation of these ampoules, can tell us on the basis of the serial number who the consumer was, and hence who is responsible for the incident at the school."

The staff of the krayispolkom's internal affairs administration were also of little help. Staff reductions have taken their toll on that organization. Now the responsibilities of five staff inspectors have all been placed on senior inspector A. V. Shklyayev. He is the one who, in addition to monitoring toxic substances and firearms, is also responsible for radioactive substances. The experience and knowledge which he has garnered over the years are of little use. As he himself is forced to admit, it has not proven possible to monitor all radiation sources properly.

"Monitoring should be the responsibility of the kray sanitary and epidemiological station, and of plant administrators. That is their direct obligation. There is a reference to that in this booklet," said Anatoly Vasilyevich, turning to the appropriate page in a booklet entitled "Radiation Safety Standards" and reading aloud: "Responsibility for compliance with radiation safety standards lies with administrators and ministry officials."

My journalistic search for those responsible for the storage and use of radioactive substances was in the home stretch. I thought as I left the krayispolkom internal affairs administration building. But I was wrong.

"The subject of radioactive substances," I was told by A. N. Parfenova, head of the radiological section of the kray sanitary and epidemiological station, "was for a long time completely closed. That led to completely absurd rumors. The majority of enterprise administrators do not have basic knowledge of radioactive substances or their possible effects. When our experts tell them that several grams of these substances can, if improperly handled, cause tragedy for dozens and hundreds of people, we can sense their disbelief. As if we were painting an overly gloomy picture. True, Chernobyl produced quite a shock, and after that happened the big bosses began taking a more sympathetic attitude toward our work. Now we have modern equipment and devices

for measuring radiation. But at the enterprises themselves the situation is unfortunately much worse. The level of specialized knowledge there is extremely low. I will give you a couple of recent examples. At one of our city's large plants—a television plant—I talked with a safety equipment engineer whose duty it is to monitor radioisotope devices. As we talked I realized that the engineer had no knowledge of such matters. I asked about his education. He replied that he had higher education, and added proudly that it was in library science. This is by no means the only example of enterprises playing with fire. Or another case: at one plant an ampoule and its container turned up missing. We told the plant director, who merely shrugged. We went to the rayispolkom chairman and complained. The chairman picked up the phone and gave the director a dressing down: "What's going on over there, if containers full of radioactive substances can be carried out the gate without you seeing them? What's your security staff doing?" The chairman was unaware that the container and ampoule together weigh just two grams and could be carried out in a pocket. They are ignorant both of radiation safety standards and of their own direct obligations. And our research data tell the story best of all."

Endless pages of thick accounts and summaries were reviewed, and the radiological sect on was assigned to present the final results of the study to the various authorities by the beginning of spring. Those findings included stories which, despite carelessness, ignorance and sloppiness, have not yet resulted in tragedy, but which are unlikely to have "happy endings," either. On New Year's Eve a truck stopped near a grocery store in a small city. The driver and a passenger went inside for a few minutes to warm up. When they came out they gasped in surprise: the truck was gone. The little city was engrossed in celebration that night, but a few people had skipped the merrymaking and festivities. Subsequent events in the search for the truck and, more importantly, for the radioactive ampoules which it contained, were reminiscent of the plot of a detective novel.

Eyewitnesses recounted to me the events which occurred at School No 68. Representatives of civil defense and soviet organs spoke before a packed audience. The mood in the auditorium grew tense, and many parents demanded that their children be checked for radiation and insisted that the food in the school cafeteria be destroyed, or even that the school be closed. The best that the numerous representatives could do to calm down the parents was to make statements like these: "Look, I held the ampoule in my hand, and I'm still alive. And your children were not even near it, because it was in the ground." There is no telling how the meeting

would have ended if Aleksandra Nikolayevna Parfenova, who brought along the booklet "Radiation Safety Standards" and listed the stores where it could be bought, had not clearly and simply explained both about the ampoule and about the favorable level of background radiation in the city. True, even so she did not completely calm the turmoil. After the meeting some parents still came forward and requested that their children be checked for radiation. Most surprisingly, among them were physicians and administrators, who should have known the elementary facts. But they did not know.

"We should not delude ourselves about the public's knowledge," I was told by L.V. Pankratov, senior sanitary physician in the radiological section of the kray sanitary and epidemiological station. "What does it say about administrators and general physicians if, even after I received my specialized degree from a medical institute, I did not know probably one-half of what I should have known? The lectures presented are vague and without connection to real life. It is good that Aleksandra Nikolayevna taught and showed and told the way she did. The picture which I have seen in this city is not very reassuring. All imported equipment containing radiation sources is delivered directly to enterprises, bypassing the sanitary and epidemiological station. I could count on my fingers the administrators who are in full compliance with radiation safety standards. Now, after all this commotion, we are witnessing absurd actions. All radioactive substances are being turned in. For example, specialists from the polytechnical institute brought us broken instruments and asked us to dispose of them. It turned out that they were simply scared. But instead of learning how to properly use radioactive substances and observe radiation safety standards, now they are trying to put as much distance between themselves and radioactive substances as they can."

One month after the criminal investigation was opened neither the senior inspector nor experts could name the specific owners of the lost ampoules. Nor do I know the names of those administrators. But the principal guilty party in these events is known. His name is carelessness. Unfortunately, many enterprises in our city are still using radioactive substances without proper monitoring. And their administrators are not familiar with radiation safety standards or with the construction and operating principles of the radioisotope devices present at their enterprises. Ignorance gives rise not only to fear, but can also lead to tragedy. We feel that the appropriate organs should give us an explanation of the events which have occurred and also take immediate steps to rectify this situation.

BELGIUM

Tindemans Defends Policy on Nuclear Cooperation *51002422b Brussels LE SOIR in French 22 Jan 88 p 3*

[Article by Guy Duplat]

[Text] Apparently the bomb was empty. On Wednesday, the Bonn Government stated that "upon investigation," all information indicating the illegal supply of nuclear materials to Pakistan and Libya "turned out to be without foundation." In Belgium, the Minister of Foreign Affairs, Leo Tindemans had called in the press to assert also that our country had nothing to reproach itself for. "There is no proof at all that either the nuclear power center at Mol or Belgonucleaire were voluntarily or involuntarily implicated in the manufacturing of an atomic bomb," stated Mr Tindemans. "All those rumors are based on a single article published in a week'y (editor's note: LE VIF-L'EXPRESS).

We adhere strictly to all the provisions of the nuclear non-proliferation treaty. But we are nevertheless willing to help Euratom, the International Atomic Energy Agency (IAEA) and the Non-proliferation Commission of the EEC in providing as much clarification as necessary."

Confident in all this, Mr Tindemans does not intend to change Belgian policy concerning civilian nuclear cooperation. Trade relations with Pakistan in that civilian area alone remain possible. "Our country is state of the art in the high technology sector of the civilian nuclear industry. We must not abandon that sector at a time when everybody talks about the importance of state of the art technologies." The Pakistani trainees welcomed at the Mol nuclear study center can stay. They are not being sent back to their country.

Mr Tindemans confirmed that no Belgian company has helped Pakistan build the bomb. Only Belgonucleaire was associated, 15 years ago, as sub-contractor with a plan to build a reprocessing plant developed by Saint-Gobain, but quickly abandoned under pressure from the United States.

Mr Tindemans described at length all the procedures and controls related to the export of either equipment, fuel or know-how in this area. The philosophy behind all of this was clear: contracts related to either reprocessing or fuel ("sensitive" materials) with countries which are not signatories of the nuclear non-proliferation treaty are prohibited. The rest is allowed, but in each case subject to a favorable opinion from the Ministry of Foreign Affairs.

Nevertheless, Mr Tindemans made a proposal to the International Atomic energy Agency (IAEA) to shed full light on the accusations that were made. The agency will soon meet with Belgian officials. On Tuesday, Euratom experts paid a visit to the nuclear power center at Mol (where the Evence

Coppee incinerator oven has been closed down in order to search for possible traces of plutonium). Belgium, said Mr Tindemans, will help those international organizations with their investigation.

Investigations With a Spade

As for the West German Government, it stated on Wednesday that all information indicating the illegal supply of nuclear materials by German nuclear companies to either Pakistan or Libya "turned out to be without foundation." The Bonn government's spokesman, Mr Friedhelm Ost, specified that based on that "enormous suspicion," the Ministry of the Environment and the Public Prosecutor's office had conducted investigations which had led to nothing: "So far, all the suspicions, rumors and insinuations have turned out to be baseless. It is time to put an end to those unproven speculations which have damaging effects on the FRG's reputation on the international scene," said Mr Ost. Mr Ost announced that on Thursday the minister of the environment, Mr Klaus Töppfer, would meet with his Belgian counterpart, Mrs Miet Smet, to discuss the matter. He added that during their investigations of the nuclear plants neither the International Atomic Energy Agency (IAEA) nor Euratom (European Atomic Energy Community) had uncovered any traces of diversions abroad of any nuclear materials.

Although the "scandal" of the Pakistani network seems to be deflating, there is still that of the waste traffic. A great many committees of inquiry are following the trail of this traffic (Mr De Jonghe, director of CEN, said on Wednesday morning that there are 11 of them working in Mol). Socialist parliamentarians Philippe Busquin and Eric Tomas have recently introduced in the House a request for a bill aimed at setting up a commission "in charge of investigating the deficiencies noted in the supervision and security of nuclear activities."

8463

Nuclear Waste Management Assured Despite Scandals

51002433 Brussels LE SOIR in French 26 Jan 88 p 2

[Article by Guy Duplat]

[Text] Torrents of ink have already described and commented on the scandal of nuclear waste. Transnuklear, the German company which holds a virtual monopoly on the transportation of such waste in Europe was corrupted to the core. The German magazine DER SPIEGEL told how "looking for DM 21 million in bribes, the German investigators discovered the surprising picture of the nuclear industry: more than 100 nuclear power station employees had extended their hand in order to obtain either new cars or free visits to brothels. Through

its secret funds, Transnuklear provided fully equipped kitchens, television sets, bundles of liquid money deposited into discreet accounts and even, on occasion, a flute for a music lover.

All those under the counter payments were apparently meant to ensure that the power station personnel not be too concerned about the exact nature of the transported waste. In Mol, waste service officials had to resign. All of them had dealt with Transnuklear on a huge contract for the treatment of German waste and received bribes. In Germany, on 22 July of last year, 18 people from Transnuklear were fired; an engineer from the company committed suicide. On 15 December, Hans Holtz, the director of Transnuklear committed suicide in jail. On 8 January, the director of Nukem, Transnuklear's parent company, had to resign and his firm was soon forced to close its doors.

Day after day, new roving barrels were found. German waste, "untreatable" in the Mol ovens, remained stored in Campine and, in Germany, Belgian waste with traces of plutonium was discovered.

True, this scandal involves primarily not very hazardous waste (gloves, shoes, aprons, contaminated mud); true, the accusations concerning plutonium traffic for Pakistan were not confirmed; true, in other non-nuclear areas waste traffic (sometimes even more hazardous) did occur; but nevertheless, the Transnuklear scandal brought to light certain weaknesses in the nuclear security organization, in the inspections carried out, and finally in the assurance that the nuclear waste will not threaten our future generations.

Because the enormous anxiety caused by this scandal in Germany is due to the existing gap between assertions that sound storage of nuclear waste can be guaranteed for decades if not centuries and the reality of a rotten traffic.

The Role of Belgium

But what is being done in Belgium with the nuclear waste produced by our electric power stations, our research centers, our universities and hospitals?

For the next 20 years, it is estimated that our country will have 180,000 cubic meters of radioactive waste to store: 150,000 cubic meters of low and medium level waste and cubic meters of very highly radioactive waste. The first volume, which could virtually contain the Atomium, must be kept secure for 300 year. By that time the radioactivity will have dropped back to the level of the surrounding radioactivity. The waste will then be without danger.

That is the kind of waste involved in the Transnuklear scandal. That is the kind of Belgian waste which one day could be buried at the bottom of a Limburg mine, or at low

depth in a nuclear cemetery in a location which the Belgian Government will have to find by 1988 or 1989 (in the current context, this decision will be very hard to make!).

On the other hand, highly radioactive waste, with very high longevity (the radioactivity of neptunium 237 drops by half only after 2 million years!) and derived primarily from nuclear fuel burned in power stations, will have to be permanently stored in deep and stable strata. An experiment is being conducted in Mol to provide, 40 years from now, a permanent and stable storage location at 220 meters depth in clay strata.

But before being permanently stocked, that waste must be treated in order to be chemically inert and stable (one must, of course, retain radioactive water which could enter groundwater tables, as well as gas and dust which could fly away). The waste must be transformed into a compact mass and immobilized in a stable matrix: cement, asphalt, resin, glass. Next, that stabilized waste must be placed in solidpacking easy to store and handle: barrels, in nuclear jargon also referred to as "packages."

Hence, for low and medium level radioactive waste the first thing to do is to sort the waste, to compress the solid waste in order to reduce its volume, to burn it. The liquid waste must be absorbed in bitumen.

The Mol Obstructions

The procedure for highly radioactive waste is much more complex. All experiments must be carried out behind thick lead walls by robot arms in order to avoid any risk of contamination for the personnel. Next, the waste is vitrified, that is to say "digested" in a mass of totally inert molten glass and then immediately poured into stainless steel cylinders equipped with an interior shield.

The nuclear power station at Mol handles the Belgian nuclear waste (but the nuclear power stations of Doel and Tihange take care of the treatment of their own effluent). At the time, the minister of public health had asked CEN to take responsibility for that industrial activity outside its usual tasks as a pure research center. It is known that today this waste treatment department will be transferred to Belgoprocess, a subsidiary of ONDRAF (the national organization for radioactive waste and nuclear fuel). This transfer had been expected since 1980, but it was never possible to carry it out because of obstructions at the Mol power station.

In order to make those installations profitable, CEN afterwards signed contracts to treat German and Italian waste. True, there are other research stations capable of treating waste: Peten in the Netherlands, Seibersdorf in Austria, Wuerenlingen in Switzerland, Studsvik in Sweden or Karlsruhe in Germany, but each center has its own specificities. Thus, states CEN, we specialize in the incineration of solid waste and the chemical purification of aqueous effluents.

Irregularities and Mistakes

- The liquid waste arriving at Mol is first stored in appropriate tanks before being chemically treated. The purified effluents are poured back into the river and the radioactive residue is plunged into bitumen. In Mol, the liquid effluents from Transnuklear were mixed with cement in a machine brought especially from the German firm (the DEWA machine).
- The waste in the form of oil or detergent is burned.
- The solid waste arriving at Mol is first sorted. The combustible waste is incinerated, that is to say burned in one of the two ovens owned by CEN: the old "Evence Coppet" oven which dates from 1960 or the new high temperature oven (FLK) which reduces waste to inert slag.
- Noncombustible waste is compressed in a press (ON-DRAF is going to purchase a new high pressure one) before being incorporated in asphalt for Belgian waste and in cement for German waste. Between 1980 and 1987, Mol has treated 15,000 cubic meters of Belgian waste (the equivalent of nearly 200 trucks filled with waste!) and 667 cubic meters of German waste brought here by Transnuklear.

At the base of the current scandal is the lack of control in this waste department. The sorting of Transnuklear's solid waste as well as the cementing was done by a German company, Smet-Jet, which is implicated in the scandal. Some waste was accepted which should never have been. The accounting of the waste traffic was badly done. In short, according to the Mol nuclear power station itself, irregularities were committed and mistakes were made.

The scandal will undoubtedly make it possible to move toward greater clarity and greater openness in this delicate area with better supervision by the national authorities. One hopes so, because even if nuclear waste frightens (sometimes wrongly so given that some chemical waste is often much more hazardous) we will have no choice but to accept, treat, and store it. An ostrich policy would be useless. Even if the nuclear industry were to be stopped today, we would have to live for decades with hazardous nuclear waste.

8463

FEDERAL REPUBLIC OF GERMANY

Nukem Admits Some Charges, Denies Others
31002440a Frankfurt/Main FRANKFURTER
ALLGEMEINE in German 3 Feb 88 p 3

[Article by ptn, Wiesbaden: "Hanau Nuclear Enterprise Strikes Back, Rejects Some Allegations by Hesse Environment Ministry—Weimar Feels Vindicated"]

[Text] Wiesbaden, 4 Feb—Nukem, the Hanau nuclear enterprise, denied at least some of the charges: today which led [Klaus] Toepfer (CDU), the FRG Minister for

Environment, to order the firm to cease operations in mid-January. At the same time, Nukem did admit to making some mistakes. Nukem issued a statement saying that some of the procedures criticized by Hesse's Minister for Environment, [Karlheinz] Weimar (CDU), which led to Toepfer's shutdown order were permissible and did not require prior notification. The Hanau firm nevertheless admitted that the supervising authority should have been notified "to show good faith." The Hesse Ministry for Environment views the Nukem statement as a backhanded corroboration of its charges. The ministry says that it is still an open question when and whether the cancellation order can be rescinded. The Hesse Land government has asked Nukem to institute changes in personnel and to come up with a new organizational scheme which will make it easier for the supervising authority to exercise control over the firm. While the Nukem management has already been replaced, the new organizational scheme has not yet been worked out.

No Need for Notification

Commenting on Weimar's charge that Nukem mixed variously enriched uranium to nuclear waste without notifying the supervising authority in order to satisfy its commitments to the Mol research center, the firm points out that this type of procedure is "permissible in principle" and that Euratom was in fact notified of it. The statement goes on to say that there was no requirement to notify the Hesse supervising authority and that it was not "common practice" to do so. Nor was there "any reason" to notify the authority in 1985 that a number of containers returned by the Mol facility were found to be contaminated with small amounts of cobalt 60 and cesium 137. The foreign nuclide content was substantially below the limits specified under Nukem's license. There was "no reason" to assume that the waste had been exchanged at Mol and that the containers were subsequently provided with improper labels. The Nukem statement does admit, however, that "no final determination can presently be made as to the possibility of improper documentation." Because of the heterogeneity of the materials it was impossible to take measurements which would have been representative for the contents in their entirety. But Nukem does admit that "in retrospect it would have made sense to conduct thorough tests."

Weimar had also accused Nukem of not notifying the ministry late last year that it conducted a spot check of containers stored at Mol for uranium. In rejecting the charge, the firm points out that it was "not required to do so for any statutory or other legal reason." Nukem admits, however, that it is "understandable in retrospect" that the supervising authority now takes the position "that it should have been informed at the time as a gesture of good faith." The firm also admits that the significance of these samples was not recognized in time and that it was "overlooked" in a meeting between Nukem, the environment ministry and the industrial

inspection board. But Nukem denies that the two samples were not discovered until the investigators conducted an on-site inspection. In fact, the firm maintains that it previously notified the supervising authority by telephone.

Weimar had also charged Nukem with transporting an improperly labeled sample of radioactive waste contaminated with foreign nuclides to the Ellweiler uranium processing plant in Rhineland-Palatinate in mid-1986, thereby potentially endangering the workers employed there. Nukem countered the charge by noting that the "small amounts" of foreign nuclides made notification "unnecessary" and that the Ellweiler staff was "not endangered in any case."

"Fully Informed"

Finally, Nukem responds to the charge that it is unable to supply exact information on the whereabouts of two containers with radioactive ash. Nukem states that the two containers came back from Mol in April 1984. The contents of the two containers were "in all likelihood added to the waste accumulated at Nukem." The practice of combining waste of a similar nature is "not subject to notification." Nukem points out that it provided "full information" on this procedure to Weimar on 14 January of this year—which was the very day on which Toepfer ordered Weimar to cancel Nukem's license.

09478

Cancelled Contracts Could Spell End for Nukem, Transnuklear

51002438b Munich SUEDEUTSCHE ZEITUNG in German 4 Feb 88 p 3

[Article by Klaus Brill: "Fighting for Survival After Disaster—Nukem, Transnuklear Staffs Plagued by Concern about Job Security, Accusations"]

[Text] Hanau, in late January—There is no doubt about it. It irks the men and women who work at the Hanau nuclear village that this story follows them wherever they go—even to the butcher shop. To hear Rolf Schueler, one of Transnuklear's three managing directors, tell it, one of their employees went to a butcher shop not long ago and when the butcher's wife recognized him, she cried out "I certainly am glad I am not married to that man" so that all the customers in the store could hear it.

That kind of thing hurts and it hurts the employees of the Hanau nuclear companies all the more because the recent scandals have not only ruined the reputation of two of the firms and placed their very existence in jeopardy but are also affecting their own job security. The uneasy atmosphere prevailing in the offices and assembly sheds at the fenced-in Hanau-Wolfgang plant is not just due to such broadsides at the butcher shop, sly accusations or even sharp attacks among friends and in the pubs.

This atmosphere prevails in particular at Nukem whose activities were curtailed by order of the FRG minister for environmental affairs. Since that time, Nukem has been like a disabled ship which has run aground and is constantly buffeted by the tides of public indignation. The cancellation of Nukem's nuclear permits has not shut down all of the firm's divisions, however, but only those which handle radioactive materials. Helmut Wietoska, the chairman of the workers council, says that the suspension of operations has affected some 250 members of the 900-member staff. Most of the 250 now have nothing to do. "They make themselves useful in some ways," says Wietoska, "even if it is just by straightening out desk drawers." Nukem spokesman Joerg Pompetzki adds: "Some of them just practice twiddling their thumbs."

Threat of Compulsory Leave

It goes without saying that there are ongoing discussions about the situation which may affect them first of all. The new management installed on orders of the Bonn and Wiesbaden governments has already inquired at the state employment office about the rules governing part-time work and the workers council believes it will not be long before some 200 Nukem employees are sent home for a time.

Other divisions of the firm are all the more busy. Now that Frankfurt's Degussa Co., Nukem's second-largest partner, has taken over the management of the firm, Degussa men have not only moved into the front office but into all of the relevant departments. They are going through the files, holding meetings and are thus trying to do justice to their function which Gert Becker, Degussa's chairman of the board and present chairman of Nukem's board, has characterized as that of a pilot guiding a ship adrift on the high seas.

Others, too, are keeping an eye on the company. Several experts from the "Treuarbeit" accounting firm have moved into a number of Nukem offices at the behest of the Bonn Ministry for Environment. They are examining the books and studying documents, trying to determine whether those who made out the bills actually exist. Experts of the Fraser management consulting firm are also occupying office space at Nukem. The Hesse Ministry for Environment asked Fraser last summer to look into the organizational structure and the business practices of all Hanau nuclear firms with the exception of Transnuklear. Officials of the reactor safety division of the Hesse Ministry for Environment are intermittently taking part in this ongoing general review of operations.

Are the Customers Keeping the Faith?

The outcome of the investigation will determine whether the authorities in Bonn and in Wiesbaden allow Nukem to resume its nuclear operations. Klaus Toepfer, Bonn's Minister for Environment, has said that he will not make a decision on the matter until both Treuarbeit and Nukem itself have submitted a written report to him on

personnel and organizational changes resulting from the affairs of the past weeks and years. Karlheinz Weimar, Toepfer's counterpart in the Hesse state government, has asked for additional information, i.e., complete disclosure regarding the 52 nuclear waste containers on which Nukem failed to report to the authorities. The Bonn suspension order of 14 January, relayed to Hanau via Wiesbaden, makes it perfectly clear that the authorities are dead serious about the affair. In fact, the order threatens Nukem with a revocation of its nuclear license (which is paramount to a complete shutdown of all its nuclear divisions) in case it fails to provide the proper explanations in due time.

Without a doubt, it is also in the firm's own best interest to comply with these requests as soon as possible. But it will take some time to prepare and examine the reports. Wietoska, at any rate, believes that "we will not be going back to work before the end of February." His statement, of course, is based on the assumption that the ministers will be satisfied with what they see in the reports. "Nobody here thinks that there will be a complete shutdown," he says.

But whether Nukem can survive the disaster will also depend on how long the suspension lasts. The suspension raises problems and not just financial ones. Who is to say that qualified workers, particularly younger ones, will not look for other jobs even if some seem to feel that this is the very time to stay on, as Nukem spokesman Pompetzki claims. And who is to say that Nukem's customers will keep the faith, if the suspension lasts too long. "Some of our customers have already asked whether we still are a reliable supplier of services," Pompetzki admits.

This is a crucial question particularly for those of Nukem's customers which get the fuel elements for their high-temperature reactors and their research and material-testing reactors either from Nukem itself or its subsidiary, Hochttemperaturreaktor-Brennelement GmbH (High-Temperature Reactor Fuel Element Ltd., Hobeg), both of which have had to suspend operations. This is of concern to firms such as Vereinigte Elektrizitätswerke Westfalen AG [United Electric Power Co. of Westphalia] which operates a high-temperature thorium reactor at Hamm-Uentrop. The company says that it has only a 2-3 month supply of the spherical, graphite-cased fuel elements on hand.

Other firms which rely on Nukem as a supplier of nuclear fuel, a manufacturer of solar and operational monitoring systems or as a provider of engineering services are not immediately affected, since Nukem's process engineering, services and operational monitoring divisions have not had to suspend operations. This is why the partial shutdown has not affected work on the Wackersdorf reprocessing plant. As a member of the Wackersdorf construction team, Nukem's responsibilities include planning and setting up the analytical laboratory, the facilities for intra-plant transport, control of

fissionable materials and the equipment needed for processing and providing interim storage of nuclear waste. Nevertheless, the new Nukem executives are worried that even those divisions of the company which were not affected by the Bonn edict might be cast adrift. "It is quite conceivable that our non-nuclear customers might start looking elsewhere, if they felt that Nukem was not going to stay in business much longer," Degussa chairman Becker said in a recent interview over Hessischer Rundfunk (Radio Hesse). When asked whether the firm could survive a shutdown lasting as long as 3 months, Becker replied: "That would be the end of the firm." The survival capability is shorter than that. The firm cannot hold out "much longer," Nukem press spokesman Pompetzki believes. "It is a question of days rather than weeks."

The edict has hurt Nukem's subsidiary Transnuklear even more than the parent company itself. For weeks now, the blue trucks with the orange containers have not left the company parking lot after the FRG Ministry for Environment penalized the firm for its nuclear waste machinations by taking away its transport license on 17 December. For weeks now, criminal police investigators have been in the building, studying documents and interrogating Transnuklear employees. According to managing director Rolf Schueler, some of the roughly 140 employees spend all of their time examining the past; others are working on new ways of handling nuclear waste; still others are taking their accumulated leave and some work part-time. At Nukem, too, Treuarbeit experts have been going over the books for weeks.

Their findings are even more eagerly awaited than in the case of Nukem. The suspension of operations at Transnuklear has led to a number of dislocations, since the nuclear shipping division of the company has the FRG monopoly on the transportation of plutonium and highly enriched uranium. No other German firm but Transnuklear owns any of the unwieldy, armored safety vehicles licensed to carry out such shipments.

Among those concerned about this situation are the operators of the Hamm-Uentrop high-temperature reactor. For the moment, their fuel supply is adequate; but the 372,000 fuel elements stored by Nukem cannot be transported at this time. In other words, if Transnuklear remains shut down, operators such as these must look for another source of supply. This same problem also worries the operators of a research reactor in Grenoble, France, which get their highly enriched uranium fuel elements from Nukem and are already running short. In this particular case, Transnukleare S.A., Paris (a subsidiary of Nukem, of Cogema, a French nuclear company and two other French firms and, at the same time, a co-owner of Transnuklear) has asked the FRG Bureau for Physics and Technology in Braunschweig to issue a license for a transport using the special Transnuklear truck.

Others, too, are borrowing the truck in order to overcome shortages. The Karlsruhe reprocessing plant, for example, which regularly supplies Alkem, another Hanau nuclear company, with plutonium nitrate and which had to suspend operations for lack of storage space on 18 December following the Transnuklear shut-down, was issued a transport license last week by the Braunschweig agency and went on to borrow the safety vehicle plus drivers from Transnuklear. Siemens, which is the co-owner (along with Nukem) of two Hanau fuel element companies, i.e., Nukem and RBU, has similar plans. Siemens became co-owner of the two firms by merging with its erstwhile subsidiary, Kraftwerk Union (KWU). The idea is to help Nukem out. Because it adds three percent plutonium to its mixed oxide fuel elements for light-water reactors and Nukem has been dependent on Transnuklear for transportation.

"Swamped With Requests"

Before the Braunschweig bureau will issue a license, however, a company's executives and rank-and-file employees are subject to an investigation of their private lives as well as a security check by the intelligence services and the FRG central registry. Since other companies in addition to Siemens have applied for licenses, the bureau "is swamped at the moment," according to Hans-Juergen Ziegler, the official responsible for issuing them. A complete security check is not always necessary because a number of companies have been active in the nuclear transportation business for some time and are well known to the bureau. These companies have been in competition with Transnuklear before and are now hoping for an increase in business.

One such firm is the "Braunkohle" shipping company of Wesseling near Cologne, a subsidiary of Rheinische Braunkohlenwerke [Rhenish Brown Coal Co.] which is owned by RWE, the Rhenish-Westphalian Electric Co. "Braunkohle" is a shipper of uranium ore, uranium hexafluoride and nonirradiated fuel elements. Essen's Gesellschaft fuer Nuklear-Service, jointly owned by Ruhrkohle, Veba and Deutsche Gesellschaft zur Wiederaufbereitung von Kernbrennstoffen (DWK) [Nuclear Fuel Reprocessing Co.], transports high activity materials such as fuel elements and removes nuclear waste from reactors. Nuclear Cargo und Service Ltd., operated by the Bundesbahn-owned Schenker Co., is in the business of transporting radioactive waste from medical clinics as well as cobalt and cesium for industry. An executive of one of the competing firms says that "it is wrong to think that Transnuklear has a corner on the market. In fact, Transnuklear can be replaced without a hitch."

Although KWU spokesman Peter Pauls vehemently denies it, it is believed that Siemens-KWU might want to stay in the nuclear transport business even after the present emergency is over. Transnuklear managing director Rolf Schueler worries that his firm might lose some business in precisely this manner but hastily adds

he believes that few other firms could replace Transnuklear in terms of quality. Another expert, who works for one of the Hanau nuclear companies, doubts that Transnuklear will survive in its present shape.

All this surely offers little consolation to the firm's employees. They are confronted with the fact that the nuclear processor in Studsvik, Sweden which had been treating nuclear waste for Transnuklear just like the scandal-ridden Belgian nuclear research center at Mol has cancelled all existing contracts. In addition, the staff feels it has been victimized by the media many of whose stories referred to the "Hanau nuclear mafia." Transnuklear executives believe that this type of publicity was responsible for stirring up the miscreants who punctured all the tires of a ranking Transnuklear employee's car following a round-table debate in the Wackersdorf area. "It is not those whom we have let go who are the target of accusations but those who have stayed with the company," says press spokesman Pompetzki, in referring to the six who were fired because of their involvement in the nuclear waste corruption scandal. "We are pretty thick-skinned," says Gerhard Klein, the newly appointed head of the nuclear waste division, "but the third layer of that skin is already beginning to wear thin."

There is an object on Rolf Schueler's desk which at first glance seems to reflect the kind of gallows humor that comes through in a great many conversations with the Transnuklear staff. The truth of the matter is that he did not put it there recently but that it has been on the desk for a long time. And yet, one is tempted to associate it with the recent events in Hanau. It happens to be a plaque of the German Seamen's Rescue Society.

09478

RWE Shedding Investment in Kalkar Rapid Breeder
51002440c Dusseldorf WIRTSCHAFTSWOCHEN in
German 22 Jan 88 p 15

[Article by Peter Junker: "No Tears Shed for Breeder"]

[Text] The news item almost got lost in the general hubbub about the nuclear scandal. While the eyes of the world were on the Hanau nuclear companies, RWE headquarters announced that the energy giant was intent on reducing its 70-percent participation in the Schnell-Breuter-Kernkraftwerkgesellschaft (SBK) [Rapid Breeder Nuclear Power Plant Company].

Friedhelm Gieske, the RWE board spokesman, said that the Kalkar rapid breeder was "first and foremost a government project" in which RWE would continue to participate "as a gesture of solidarity," but that RWE would no longer go it alone, since it had no desire to continue to be solely identified with the "patently controversial installation."

But this frank statement was also made for purely business reasons. By now, RWE has written off its participation in the reactor in full and, according to the board, the roughly 200 shareholders of the company need not worry about any further financial commitments in the future.

But this could already have been foreseen even if RWE had not pulled out. Since new delays in connection with the issuance of necessary permits make it highly unlikely that the breeder will go into operation before 1990 or 1991, some DM 11 million in stopgap funds are required each month—over and above the DM 6.5 billion which have already been invested in the reactor. These monthly costs are to be shared equally by the government, the builder and SBK or, in other words, RWE.

RWE now wants its share to be divided among the other energy suppliers. Bayernwerk AG of Munich has already let it be known that "we would not dream of paying a share"—and it is not the only company to take this position.

Unless things change, the full burden will fall on Heinz Riesenhuber, the Minister for Research. But it is more than doubtful that he will be able to pry loose the millions he would need, given the present budget difficulties. There is one consolation for Riesenhuber: if he were to let the breeder die, none of the power companies would shed a single tear.

09478

Completion of Kalkar Fast Breeder Reactor Further Delayed

51002420a Dueseldorf *HANDELSBLATT* in German
11 Jan 88 p 1

[Text] Dueseldorf (DPA)—The completion and startup of the "fast breeder" power plant in Kalkar on the Lower Rhine are receding farther and farther into the distance. The operators of the model SNR-300 breeder now have applied to the North Rhine-Westphalian Ministry of Economics, which has jurisdiction in the matter, for authorization for new as well as already completed construction and reactor modifications.

As ministry spokesman Ewald B. Schulte reported over the weekend, the application to store atomic fuel elements in the uncompleted reactor installation—which meanwhile has gobbled up almost DM7 billion, four times the sum originally planned in 1972—was simultaneously withdrawn. According to the builders, the breeder was to have begun trial operations already in 1985. This is unlikely to happen in this decade, if at all.

According to Schulte's statements, the Fast Breeder Nuclear Power Plant GmbH (SBK) itself admitted in its new application that, as a consequence, the reactor has reverted back to its initial construction phase. Thus, modifications to the ventilation system would take at

least half a year. Now, the ministry will carefully consider the applications. As early as April 1987 North Rhine-Westphalian Minister of Economics Reinmut Jochimsen had criticized the fact that much construction had been done in violation of regulations and component construction permits.

Juergen Ibowski, spokesman of the firm Interatom GmbH which functions as SBK's prime contractor, stressed to the contrary that the fast breeder was "completed and ready to go into operation" and it "could receive the fuel elements right away tomorrow." The fact that SBK had withdrawn the application for storage of the atomic fuel elements had been misinterpreted. The structural modifications which had been applied for did not have anything to do with the nuclear area. Rather, they had been brought forward because the storage permit had been delayed by the authorities. The modifications could have been undertaken in parallel with nuclear operations. Every month of downtime for the breeder costs between DM10 and DM12 billion.

13238/7310

Authority, Staff of Radiation Monitoring Agency To Expand

51002440b Frankfurt/Main *FRANKFURTER ALLGEMEINE* in German 6 Feb 88 pp 1, 2

[Article by K.B., Bonn: "Radiation Monitoring Agency to Get Staff of 500—Other Agencies to Be Merged with Toepfer's Projected Super Agency"]

[Text] Bonn, 5 February—The projected FRG Radiation Monitoring Agency is to have a staff of 500. 400 of the staff members are to come from existing agencies responsible for radiation and reactor safety. These specifics are part of a draft proposal calling for the establishment of such an agency by [Klaus] Toepfer, the FRG Minister for Environment, which has been obtained by this newspaper. The government ministries concerned will decide on Toepfer's proposal by the time the cabinet meets on 17 February. It has been agreed that the cabinet will then reach a formal decision to create the new agency.

The Office for Radiation Protection is to become a super agency under the minister for environment. The rationale behind the creation of the new agency is to provide the Bonn government with an effective means for the technical and operational oversight of radiation protection, waste disposal and overall safety in the nuclear technology field. The establishment of the new agency is also expected to result in organizational changes at the environment ministry.

Toepfer feels it is absolutely necessary that the control function be improved and that the federal government and the Laender jointly assume responsibility for compliance with regulations in accordance with the existing division of official responsibilities. In his proposal, Toepfer makes it clear that the oversight function must

be improved in the light of the Transnuklear affair. The minister for environment, he points out, may be the ultimate authority for the technical oversight of radiation protection and reactor safety but he does not have the funds, the manpower or the organizational structure to influence overall operations.

The creation of the new agency has been accompanied by squabbles within the cabinet. These were not settled until earlier this month when the state secretaries concerned reached something of an agreement, at least in principle. The various departments raised the question of whether there really is a need for the new agency. Discussions have focused on the issue of transferring the responsibilities of other departments to the Ministry for Environment. Toepfer has been asked to lay out the reasons for the establishment of the new agency as well as its functions, its organizational structure and its personnel roster by the time the cabinet meets in the middle of the month.

The Toepfer proposal calls for integrating the following institutions into the new agency: the Institute for Radiation Hygiene (ISH) of the Federal Health Agency in Munich; the Institute for Atmospheric Radioactivity of the Federal Civil Defense Agency (IAR) in Freiburg; the "Safeguarding and Terminal Storage of Nuclear Waste" division of the Federal Institute for Physics and Technology in Braunschweig and the department of "Earth Science Studies for Terminal Storage of Radioactive Waste" of the Federal Earth Science and Raw Materials Agency (BGR) in Hannover.

The Association for Reactor Safety, with offices in Cologne and Munich, is to retain its independent status as a scientifically oriented organization of experts. Toepfer believes, however, that those of the association's activities which have a direct bearing on the monitoring function of the government should be transferred to the new agency. For the most part, the Toepfer proposal goes on to say, these are activities which the association took on because the Ministry for Environment has thus far been without a department equipped to deal with them. It is expected that the integration of some institutions into the new agency will prove difficult. One example is the Institute for Radiation Hygiene which is not a government body but is being operated as a limited liability company.

09478

Assaying Conditioned Waste for Interim Waste Problematic

51002438a Munich SUEDEUTSCHE ZEITUNG in German 9 Feb 88 p 3

[Article by Christian Schneider: "Nuclear Waste Shipments—A Gap in the Control Network—A Mountain That Is Being Pushed Around—Why Nuclear Power Plant Operators Are Virtually Unable to Tell What Type of Radioactive Waste They Get Stuck With"]

[Text] Grafenrheinfeld, in February—On paper, the regulations are perfectly clear. Nuclear legislation and radiation regulations contain the guidelines on who may transport nuclear materials under what conditions. At first glance, these guidelines seem foolproof but on closer inspection it turns out that a lot of them must be taken on faith. Summing up the information gathered in the Transnuklear investigation thus far, Josef Vogl, a ranking official of the Bavarian Ministry for Environment, concludes that "regular household trash is far more difficult to ship from Germany to a foreign country than radioactive waste."

Here, in Grafenrheinfeld just outside Schweinfurt, Bayernwerk AG has been operating a 1200-megawatt pressurized-water reactor since 1981. The radioactive waste from this reactor cannot just be dumped at any disposal site. This does not apply to spent high activity waste which is shipped to La Hague in France or to Sellafield in England for reprocessing and subsequently returned to Germany. It does apply, however, to low and medium activity waste such as is produced in the day-to-day operation of any nuclear plant.

The quantities of waste are considerable. Grafenrheinfeld alone produces some 226 cubic meters of unconditioned nuclear waste each year, i.e., waste which has not yet been processed for terminal storage. In terms of conditioned waste, that amounts to 70 canisters waste per year. And yet, pressurized-water reactors are considered "waste-friendly." By comparison, the boiling water reactor, Isar I, operated by Bayernwerk at Ohu near Landshut, produces some 380 canisters of nuclear waste per year.

Loading in Low-Pressure Environment

According to the National Bureau of Physics and Technology (PTB) in Braunschweig, the 20 nuclear power plants in the FRG produced 1,161 cubic meters or some 5,800 canisters of conditioned nuclear waste in 1986. In addition, some 10,740 canisters of low and medium activity nuclear waste were produced by industry, research laboratories and medical institutions. The figures for 1987 are substantially higher. The Bureau estimates that the power plants alone produced some 3,000 cubic meters of nuclear waste—attributable to a degree to the partial deactivation of the Gundremmingen and Kahl reactors, both in Bavaria.

To keep from being deluged by nuclear waste, the accumulated waste is picked up every 2 or 3 months at Grafenrheinfeld. The disposal company sends its trucks to the plant upon request. The trucks are loaded according to strict safety rules in an air lock, a shed which is kept under low pressure just like the immediately adjoining control area of the plant. This is done to make certain that no contaminated particles can escape to the outside.

16 steel canisters the size of office desks are carted away from Grafenrheinfeld each trip. The contents are carefully separated into flammable and non-flammable materials, i.e., contaminated or superficially radioactive dust cloths, work clothes, overshoes, paper and air filters as well as tools, screws and small machine parts from the reactor area which need to be replaced from time to time.

Separate truckloads contain concentrated sludge residues left behind by the evaporation of radioactive water as a result of leakage and drainoff from cleansing and purification procedures in the control area of the reactor building. Corrosion and fission products which are filtered out of the primary circuit as they flow through the so-called ion exchanger must also be stored in containers and picked up at regular intervals. This includes materials such as cobalt 60 as well as iodine, cesium and at times "infinitesimal traces of plutonium," according to Vogl, when older fuel rods in the reactor core have begun to leak.

Every one of the disposal transports is provided with detailed bills of lading. "We know exactly what leaves our plant and what the permissible radiation levels of the conditioned waste are which is returned to us," says Rainer Platz, the radiation protection officer at the Grafenrheinfeld reactor. Shipments are not allowed to leave the plant until the driver has shown Platz his transport authorization. The authorizations are issued by the Land agency responsible for these matters; in Bavaria, it is the Land environmental protection agency. Anyone requesting such authorization must submit proof of reliability, adequate experience in handling radioactive materials and adequate insurance. At the present time, 26 companies have been issued permits to transport nuclear waste by the Bavarian authorities. The authorizations specify the type of vehicle to be used, the way in which nuclear waste must be packed and the maximum permissible radiation level on the surface of the containers.

The authorizing agency does not know, however, which transport is on its way to which destination at any given time, since no such reporting requirement exists. But like his colleagues at the other nuclear power plants throughout the FRG, Platz must ask the shipper to produce a document specifying which processor has agreed to accept the waste. No trucks are allowed to leave the plant without this document.

But this is the point at which the plant operators cease to exercise sure control and the point as well at which the inadequacies of the present German nuclear disposal program begin to show. Nuclear waste shipment as such plays only a subordinate role; the processing of nuclear waste, performed for the most part in foreign countries, is not subject to German control. The power plant operators have only inadequate means to guard against

possible mistakes by others. "We continue to own the nuclear waste until it is returned to us," Platz says, "but at times we are unable to exercise complete control over it. That is the problem."

The origins of this problem were already spelled out in a 1980 study by the German Nuclear Forum, the nuclear industry's lobbying organization. "At this time," the study said, "the FRG has no terminal storage sites for low and medium activity nuclear waste." This situation is not likely to change in the foreseeable future. The use of the idle "Konrad" iron ore mine near Salzgitte as a terminal storage site has not yet been authorized and the outcome of the approval process is uncertain.

This, in turn, leads to other problems. Since there is a shortage of interim storage sites, the nuclear power plants cannot get rid of their waste for the time being—and month after month the mountain of waste gets bigger. Only the Bavarian plants can breathe a little easier now: an interim nuclear waste storage facility was set up at Mitterteich in the Upper Palatinate last year. The remaining operators are still forced to store the waste at their own plants. This is not just a question of space but a question of cost even in those areas where interim storage facilities do exist. By now, storage costs for just one nuclear waste container have climbed to DM1,800. Some years ago, the rate was a mere DM150.

It is easy to see therefore why the operators would like to keep the amounts of waste slated for terminal storage at the "Konrad" mine to a minimum. The magic formula is conditioning, i.e. not merely environment-safe packaging of nuclear waste, but above all drastic reduction in waste volume—which can be achieved by means of combustion, evaporation or compression.

But in his recent report to the Land assembly, Alfred Dick, the Bavarian minister for environmental affairs, had to admit that the FRG's conditioning capability is "limited." At present, small quantities of nuclear waste can be reduced at the Karlsruhe and Juelich nuclear research institutes and, since 1986, at a conditioning plant operated by Siemens at Karlstein in Lower Franconia. Only a handful of FRG nuclear power plants are capable of conditioning even small quantities of their own waste products. The proper equipment costs a great deal of money and, what is more, its operation calls for highly qualified personnel.

When the Yellow Canisters Arrive

Under the circumstances, it is less costly to take advantage of the services offered by others. The Hanau-based Transnuklear Co. recognized this need and offered the nuclear power plant operators a package deal consisting of shipment and conditioning of nuclear waste. The firm had no conditioning facilities of its own but did have a contract with the large-volume conditioning plant at the

Belgian nuclear research center in Mol. "All of Europe is standing in line at Mol," Vogl says. Given this crush, those who get their nuclear waste accepted are ahead of the game.

It may well be that this is the key to the Transnuklear corruption affair. One explanation might be that Transnuklear bribed the Belgians to assure itself of large-volume conditioning and thereby beat out the competition. Conversely, Transnuklear might have paid off the German operators to secure sufficient amounts of nuclear waste to take advantage of the large conditioning orders it placed at Mol. In either case, the big winner was bound to be the shipper, i.e. Transnuklear. Sources at the Bavarian ministry for environmental affairs call these allegations "nothing but speculation" but admit that the scenario is nevertheless plausible.

To dispose of nuclear waste produced at the Grafenrheinfeld and Ohu reactors, Bayernwerk signed a contract with Transnuklear and not with the Mol facility itself. One of the reasons why the Hanau firm was awarded the contract was that the Belgian conditioning plant goes by the name of "government nuclear research center." According to Wolfgang Schober, the head of Bayernwerk's energy and nuclear fuel department, this was one way of making sure that "we were not being taken by a fly-by-night outfit or that something might go wrong." What is more, Schober says, both the cost and the terminal storage capable nuclear waste returned by Mol via Transnuklear had been "right." Prior to signing the contract, Bayernwerk representatives actually inspected the Mol plant. "After all," Schober says, "we had to find out what goes on there and what we would get back."

At the same time, however, Schober admits that Bayernwerk has never seen the contract between the Mol research center and Transnuklear. "But the contract we signed specifies that we are to get our own waste back in conditioned form and nothing but," Schober points out. The only problem is that it cannot really be verified. "We turn over the nuclear waste and have nuclear waste returned to us," says Peter-Michael Schabert, the director of the Grafenrheinfeld reactor, "but we can never tell whether it really is our waste."

When the conditioned nuclear waste comes back from Mol, the yellow canisters are offloaded once more in the low-pressure air lock. Before the canisters are placed in interim storage six meters underground in the cellar of the reactor each one is carefully examined for outward signs of damage. Then, each container is weighed, the surface radiation level is measured and a so-called wipe test is performed to determine whether the surface of the container is contaminated. The measurements thus obtained are compared with those which appear on the waybills issued by the Mol conditioning facility. If the information jibes, the containers are lowered into the cellar through a trap door.

This examination does not yield a great deal of information. "All we can tell," Schabert says, "is whether the level of radioactivity is greater than that of the waste we originally sent away. It would be easy to add plutonium to the waste without our knowing it." The alpha rays emitted by plutonium cannot be detected by surface measurement. In order to detect this type of radiation, one would have to open each and every container and destroy the bitumen packaging of the nuclear waste. This type of procedure would expose the inspectors to great hazard. But then again, why should one be looking for plutonium at all, if the canister should not by rights contain any, since none was shipped to Mol in the first place?

Preussen-Elektra, the Hannover company which operates the Unterweser and Stade reactors among others, is responsible for the fact that the Transnuklear corruption affair suddenly took on a different dimension in early December. The Preussen-Elektra nuclear waste shipped to Mol apparently contained small amounts of plutonium, which is not unusual. To make sure that it was not getting back more plutonium than it had sent out, Preussen-Elektra specifically asked that the plutonium content of the conditioned waste returned by Mol be listed. But since neither Transnuklear, nor Mol was able to provide this information, Preussen-Elektra opened the canisters, took a drilling sample and found that the nuclear waste contained more cobalt 60 and more plutonium than had been shipped to the conditioning plant from Unterweser and Stade. At that point, the cat was out of the bag.

Schabert says "it is quite inconceivable that we have no way of telling what is going on in Mol, given the openness of our own operation." Nonetheless, he is puzzled by the hubbub about the Transnuklear affair. "After all," he says, "there is no proof so far that anything that poses a threat to safety has actually taken place."

09478

IRELAND

Support From EEC Against British Nuclear Dumping

51500117 Dublin IRISH INDEPENDENT in English
28 Jan 88 p 5

[Article by Dick Cross]

[Excerpt] Britain will have to give in to the full force of European nations against any actions by its nuclear industry which would be detrimental to this country, a Minister predicted yesterday.

Science and Technology Minister Dr Sean McCarthy is confident EEC countries will support us in lobbying Britain on nuclear risks.

"If Britain feels it need not take notice of Ireland's complaints regarding nuclear waste, it can hardly ignore the international lobby. We will certainly be seeking to establish that lobby". We have a lot of support in Europe, he explained.

Britain will eventually have to concede to international pressure and "react in a positive fashion" to Ireland's justified concern over nuclear risks to our people, continued Dr McCarthy. He was being questioned in Cork about the reported proposals by the British Government to authorise the sinking of a nuclear submarine a couple of hundred miles south-west of Cork and Kerry.

He told reporters that the Government is extremely concerned at any suggestion at all which would involve any form of dumping. He promised that it would oppose any form of dumping off our coast and was confident of getting support in the EEC continental nations for our stance.

Britain yesterday snubbed initial EEC moves to halt the Chernobyl-type test on the Trawsfynydd nuclear reactor in Wales. EEC Environment Commissioner Clinton Davis told the British that a treaty demands the Commission should give its go ahead to "dangerous experiments." But he got a letter from Energy Minister Cecil Parkinson yesterday saying the tests were not dangerous and therefore not covered.

/9274

Government Urged To Protect British Dumping Plans

51500112 Dublin THE SUNDAY PRESS in English
24 Jan 88 p 1

[Article by William Rocke]

[Text] The British government is considering scuttling its first-generation nuclear submarines off the south-west coast of Ireland. The "hunter-killer" submarines, complete with their 850-ton radioactive power units, would be filled with concrete and dumped on the seabed, THE SUNDAY PRESS has learned.

The first of the submarines, the 25-year-old "HMS Dreadnought" has on board an American-built pressurised water reactor—a mini nuclear power station measuring 33 feet in diameter and 27 feet high—which had been used to power the vessel.

The Department of Foreign Affairs said that they were monitoring the situation but would make no further comment. "We prefer not to say anything at present," the spokesman said.

The 3,000-ton Dreadnought hulk, currently lying in a secure berth at Rosyth on the east coast of Scotland, has become a major headache for the British Admiralty, as it

is estimated it would cost in the region of £15 million just to remove the reactor and a safe dumping place would still have to be found.

The problem is made more urgent in that Britain's two Valiant Class submarines will also be scrapped in the next four to five years and the four Polaris "R" class vessels are due to be phased out by 1998. All of these will have similarly radioactive propulsion units that will need safe disposal.

The alternative to establishing a radioactive submarine cemetery several hundred miles south-west of Ireland is to go through the highly expensive process of removing the reactors and then burying them in a site approved by NIRAX, the British body concerned with radioactive waste.

Scuttling at sea has obvious political connotations for the British government, as attempts to establish even low-level nuclear dumping sites there have been met with storms of protest from Irish residents.

Dumping of any nuclear waste off the Irish coast five years ago when public controversy—led by the Greenpeace organisation—resulted in the National Union of Seamen deciding to refuse to cooperate. Nine sites in the Atlantic have been used by Britain and other EEC countries.

While the Department of Foreign Affairs remained tight-lipped on the issue, it will be raised in the Dail shortly. "the Minister will be making his position clear on the matter then," the spokesman said.

Mr John O'Halloran, of the National Cooperative Council, has urged the Government to lodge a strong protest about the plan and an expert on naval matters in Britain has warned about the dangers involved.

Mr Paul Beaven, naval editor of Jane's Defence Magazine, said: "It's such an unknown quantity that no decision has yet been made. You just don't know how components are going to react with salt water. It would be foolhardy to deliberately scuttle a nuclear submarine.

"There are six nations in the world who are just now facing the problems associated with disposing nuclear submarines when their lives come to an end," said Mr Beaver. "The French are going to have the same problem as the British in 15 years."

The Dreadnought, according to John O'Halloran, has been lying up in Rosyth on the east coast of Scotland. He believes the present plan to scuttle the vessel is prompted by a recent medical survey of 60,000 Scottish children which found that of 43 cases of leukaemia found in the county of Fife, 12 of those were in Rosyth where the Dreadnought is berthed. Fifteen cases were found in the neighbouring village of Levenmouth.

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Dublin Pleased By UK Test Postponement
51500114 Dublin IRISH INDEPENDENT in English
4 Feb 88 p 11

[Article by Claire Grady, Mary Punch and Tom Reddy]

[Text] The Government last night welcomed the postponement of the controversial test due to be carried out at a Welsh nuclear power station next week—but warned that proposed proceedings against Britain in the European Court remained “under review.”

Energy Minister Ray Burke said that while he welcomed the news that pressure mounted by the Irish Government had played an effective role in the postponement, he was still awaiting news of the actual cancellation of the test. He was also awaiting a reply to his letter on the matter from his British counterpart, Mr Cecil Parkinson, M.P.

The British Central Electricity Generating Board announced yesterday that the test planned for Friday, February 12 at Trawsfynydd, near Holyhead, had been put off because of public concern and because the safety issues involved had been misrepresented.

The Irish Government is one of the strongest objectors to the proposed test and threatened to take legal action against Britain if it went ahead.

Objectors on both sides of the Irish Sea said the experiment on the 23-year-old nuclear reactor at Trawsfynydd could result in a disaster similar to Chernobyl.

The test involves shutting down one of the two reactors at the plant to examine how the reactor cools itself through the natural circulation of carbon dioxide.

The CEBG said that previous tests on two other Magnox reactors had gone off without incident and the test at Trawsfynydd would actually be less severe than the conditions the reactor experiences in normal operating.

The CEBG said it was very concerned at the strength of local opposition to the proposed test and had, therefore, decided to postpone it. A fresh review will now be made of the technical evidence relevant to natural circulation.

The review will be carried out by the Nuclear Installations Inspectorate, the body responsible for giving the final approval before any tests can be carried out at nuclear plants.

Following yesterday's announcement, the EEC Nuclear Safety Commissioner, Mr Stanley Clinton Davies, is to send a team of officials to London for further talks and investigation into the type of experiment planned at the nuclear reactor site.

The decision to delay the test also follows a stern letter from the EEC warning that “dangerous experiments” must be given clearance by the European Commission before they are carried out under the terms of the Euratom treaty. This claim was rejected by the British government.

Engineers at the CEBG site and nuclear experts warned that the experiment on the reactor could lead to a fire similar to that which swept through Windscale in 1957.

Yesterday, the CEBG said it still expected to get approval for the test from the Nuclear Installations Inspectorate (NII).

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Nuclear Technology Poses Threat to Ireland
51500115 Dublin IRISH INDEPENDENT in English
30 Jan 88 p 5

[Article by Eilish O'Regan]

[Text] Nuclear technology poses growing, permanent risks of potentially catastrophic proportion for Ireland, Fine Gael leader Alan Dukes warned last night.

Recent controversies concerning the effects on this country of accidents and security breaches in British nuclear installations, the dumping of nuclear waste at sea and the disposal of decommissioned nuclear submarines are not isolated incidents and amount to the tip of the iceberg, he stressed.

And he called for greater support for moves at European Commission level to monitor and control nuclear procedures to ensure that everything technically and humanly possible is done to reduce the risk to the population.

“Once a nuclear reactor is constructed it cannot be destroyed or rendered harmless even in the longest timescale which human planners can envisage,” he told a Fine Gael meeting in Clare.

“The central components of the reactor and the materials and structure immediately surrounding them, once they have been used, remain radioactive for many, many generations into the future,” he explained.

“This is a problem that will continue to grow as nuclear reactors of the present generation come to the end of their useful life but they are only part of the problem,” he emphasised.

He said it would cost up to £15 million to remove each of the nuclear reactors from the redundant submarines which Britain intends to scuttle in the Atlantic. But the problem was compounded by the fact that substantial parts of the hulls of the vessels are contaminated.

He pointed out that both the United States and Russia now face major problems in the recently agreed disposal of nuclear missile warheads while the nuclear industry, itself, has been plagued with a series of abuses—clear evidence that control mechanisms are not fully effective.

"Nuclear technology is far ahead of our ability to deal with the consequences of accidents or its waste products," he said.

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Nuclear Energy Board Staff Supports Turvey's Views

51500116 Dublin THE SUNDAY PRESS in English
24 Jan 88 p 6

[Article by Colman Cassidy]

[Text] Scientific staff at the Nuclear Energy Board support the views expressed by assistant chief executive Frank Turvey, whose backing for the controversial power shutdown test at Trawsfynydd nuclear plant, has been roundly condemned by the Minister for Energy.

In an interview, with the SUNDAY PRESS, the Board's chief executive, Dr Noel Nowlan said of Mr Turvey: "He has very strong support among technical staff here. And there is certainly no question of his being asked to retire. Quite the contrary."

Dr Nowlan would not comment directly on the events arising from Mr Turvey's initial support for the test, the Minister's outraged response and the subsequent "corrected statement" from the NEB dissociating the Board from Mr Turvey's stand.

Climbdown

In a subsequent press statement—after his meeting with Dr Nowlan and the NEB chairman, Dr George Duffy—Mr Burke noted that the purpose of the Board's apparent 'climbdown' was to "correct the impression created" by Mr Turvey's remarks which could have been interpreted as official NEB support for the proposed test.

Nonetheless, there is a strong sense of resentment within the NEB, according to the chief executive at what he termed media suggestions that the Board is a pro-nuclear body—and that it supports the British nuclear industry.

In his mid-week speech to the Seanad in which he referred to the proposed new National Radiological Protection Institute (to replace the NEB), the Minister said: "I can assure the Senate that whatever attitude may have been manifested in the past, a pro-nuclear approach will in no way be reflected in the (new institute's) charter."

Its terms of reference, he said, would be very much in accord with "the present climate of opinion in Ireland surrounding the nuclear industry and the reality of the world in which we live."

Nonetheless, it is envisaged that the present scientific staff of the NEB will form the core of technical expertise at the new Institute—apart from the chairman and the chief executive who are both scheduled to retire, on the Board's dissolution.

To put the controversy in context, it appears that the NEB's senior scientific officers are at one mind with Mr Lewis Stretch, the former works manager at Calder Hall nuclear plant in Cumbria, who warned British Prime Minister Harold Macmillan of Windscale's deplorable shortcomings only months before the second worst nuclear accident in living memory occurred there in 1957.

No Risk

Contacted by the SUNDAY PRESS in the wake of the storm over Mr Turvey's remarks, Mr Stretch, an expert on Magnox reactors of the type used at Trawsfynydd, said: "If the test is intelligently and meticulously conducted there is no risk to the environment. The CEBG (Central Electricity Generating Board) engineers have built up a good reputation and tradition for operating power stations such as Trawsfynydd under strict conditions."

The Magnox reactors, he said, despite their age (the Welsh station has been operating for 23 years) have a good safety record.

Chernobyl

There was no danger of a Chernobyl-type incident because it was a totally different type of reactor, said Mr Stretch. Ironically, in view of Friday's incident at the Welsh plant where the reactor shutdown because of system failure, he said the trip system at Calder Hall was thought to be "too sensitive"—and was liable to cause unwarranted shutdown.

Tests similar to that planned for Trawsfynydd were part of his original scenario for Calder Hall. In the event, he was unable to implement them since he retired in August 1957 in protest at the secretive and publicly irresponsible way that the industry was being managed.

Old Plant

The information that could be gathered would be very valuable—and the worst that could happen, in his opinion was that Trawsfynydd might be lost to the national electricity grid. In the event, he said, it made economic sense to experiment on an older nuclear plant that was due to be phased out.

The CEGB wants to cut off the gas coolant circulators at the Welsh plant for eight hours to see if the reactors overheat—to test claims that the reactors can be shut down safely if the cooling system fails. The Board argues that natural circulation will prevent the reactor from over-heating dangerously.

The Windscale 'accident' could have been avoided, 30 years ago, Mr Stretch said, if they'd had the kind of information that such a test might yield: "They put on more heating when it was obvious that it was already too hot."

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Radiation Tests on Lambs Show No Cause for Concern

51500113 Dublin IRISH INDEPENDENT in English
5 Feb 88 p 11

[Article by William Dillon]

[Text] Post-Chernobyl radiation tests on Irish lambs have consistently shown there is no cause for any consumer concern and no health problem, those who performed the tests said last night.

A joint statement from the Department of Agriculture and the Nuclear Energy Board said that even if a person ate the national average consumption of 5 kilos of lamb at 1,000 becquerels of radiation per kilo, the effect would be equivalent to just one X-Ray.

They said that a survey on 7,429 animals on 636 farms on upland areas of Donegal, Sligo, Leitrim, Roscommon, Mayo, Galway, Waterford and Kilkenny in late Summer 1987 showed that only two percent of sheep had caesium levels over 1,000 becquerels per kilo.

For the most part, the higher levels were found in sheep retained on farms for breeding stock and which were not intended for consumption.

Last month's monitoring programme at slaughter points catering for the home and export markets covered 4,000 sheep. More than 96 percent of them had caesium levels lower than 100 bq/kg. per kilo.

This stringent testing at butcher's shops and slaughtering points would continue as would on-farm testing.

The wider survey of sheep in counties with upland peaty soils and which were known to have suffered higher rainfall during the passage of the Chernobyl cloud began in late summer.

"The pattern of sheep production in mountain areas is such that lambs are normally moved to lowland pasture for a period of two to four months prior to slaughter. [quotation marks as published]

/9274

UNITED KINGDOM

Chernobyl Aftermath Scan Omits Yorkshire 'Hotspots'

51500120 Leeds YORKSHIRE POST in English
20 Feb 88 p 13

[Article by Stephen Walsh]

[Text] Scientists carrying out a national survey of human radiation levels after the Chernobyl disaster have described their preliminary results as "reassuring."

The tests have revealed that people living in areas affected by heavy rainfall which carried Chernobyl fallout have radiation levels fractionally above normal.

But the survey, funded by the Environment Department and led by medical physicists at Newcastle General Hospital, has deliberately not covered radiation "hot-spot" areas in Yorkshire which were first uncovered by the YORKSHIRE POST.

The team is satisfied with the results of a similar survey conducted last year by the National Radiological Protection Board, which included people from the affected areas in Ilkley, Skipton and the Yorkshire Dales, and concluded that there was no cause for concern.

The NRPB's human survey was undertaken after it was revealed that farmland in those areas of Yorkshire probably carried radiation levels 20 times higher than that permitted by the Government in foodstuffs.

But it showed that only three of the 400 people tested had levels high enough to be detected by the body-monitoring equipment. In those cases, the readings showed they had an annual radiation dose equal to only one percent of their natural radiation level.

The new survey by the Newcastle-based team was set up in response to the Black Report into the apparent link between the Sellafield nuclear plant and leukemia. It is designed to provide accurate information about the normal levels of radiation in the population.

The survey's first results show that the average reading for people from areas which had little or no rainfall at the time the Chernobyl cloud passed over Britain is about 200 to 300 becquerel of radio caesium. In areas where rainfall was heavy, on average people have readings of double that figure.

But one of the team's scientists, Dr Alan McKenzie, a principal physicist for the Northern Regional Health Authority, stressed that the difference was insignificant.

He pointed out that the average person would score a reading of about 4,000 becquerel from naturally-occurring potassium in the body. The caesium levels found do not reveal wide regional variations which might have been expected from differing amounts of rainfall at the time the Chernobyl cloud passed over the country.

More than 1,300 volunteers have been tested since the study began last May. It is expected to be completed by September.

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Safety Body States Limit on Number of Nuclear Plants

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[Article by Roger Highfield]

[Text] Risk targets used by Britain's nuclear industry have been made public for the first time in a Health and Safety Executive document to launch a public debate on nuclear safety based on "a better understanding".

The document sets a "societal risk target" which puts a theoretical upper limit on the number of nuclear power stations there should be in Britain at no more than 100.

At present Britain has 42 operating nuclear power reactors.

Beyond this limit the risk of an accident would be unacceptable unless the generating boards could demonstrate that the nuclear reactors posed a "very much lower risk", said Mr John Rimington, director general of the executive.

The document outlines the approach used to calculate the risk of an accident at modern nuclear power stations like Sizewell B, giving the risk itself of around one-in-a-million for each year of operation.

But it does not give estimates of the risk posed by Britain's 26 Magnox reactors because "it is impossible to be precise" in the case of old-fashioned reactor designs, said Mr Rimington.

Magnox stations are more dangerous than modern designs such as the Advanced-Gas Cooled Reactors, Mr Rimington admitted.

Though a modern risk analysis was carried out on the Bradwell nuclear station in Essex by the Central Electricity Generating Board, Mr Rimington would not give the risk estimate, save to say that the risk posed "is in the same risk parish" as that from a modern nuclear station.

Mr Rimington denied that the fact that modern safety analysis would not be applied to the older generation of British nuclear plants undermined the report. "If we could do it we would have," he said.

He added that he "would like to think" that if the document had been published before the uproar over a proposed test at Trawsfynydd in Wales that some of the heat would have been taken out of the debate.

It sets out in detail the basis for assessments of civil nuclear risk and the approach of the HSE, the licensing authority.

This fulfilled an undertaking given in response to Sir Frank Layfield's report on the Sizewell B pressurised water reactor which recommended that such a document should be published to stimulate public debate on risks.

It has printed 5,000 copies of this document, and though it wants to hear public views by May 6, Mr Rimington admitted that "it is not going to be big reading in the fish-and-chip shop at the Edgware Road".

Risk of Disasters	
Event	Chance per year
Fire killing 10 or more	1
Rail accident killing or injuring 100 or more	1 in 15 years; or 1 in 20
Air accident killing 500	1 in 100
Tidal surge too large for Thames Barrier	1 in 100
Canvey Island disaster—1,500 deaths	1 in 5,000
Disaster causing 18,000 deaths	1 in 100,000
Plane crash on empty London soccer ground	1 in 1m
Plane crash on full soccer ground	1 in 100m

He said it took a great deal of effort to produce the document.

"This is a document that only a madman would try to put together because we are dealing with a highly technical subject that a lot of people have strong feelings about.

"We can compare risks, but at the end of the day it is up to the public to make their mind up about them," said Mr Rimington.

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Nuclear Plant Test Postponed Because of Concern

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[Article by Roger Highfield, Technology Correspondent]

[Text] A planned test at the Trawsfynydd nuclear power station in Wales has been postponed because of overwhelming public concern, the Central Electricity Generating Board said yesterday.

The board believed the strength of local opposition had arisen because of the way the test and safety issues had been "misrepresented."

A spokesman said the trial would be carried out at a later time. "It could be at any of our eight Magnox nuclear stations," he added.

Farmers, MPs and environmental groups had opposed the test amid fears it could turn into a "Welsh Chernobyl." Gwynedd County Council, parents and teachers had considered evacuating children if the board insisted on going ahead next week.

But the board maintained the test was safe. It intended to prove that Britain's ageing Magnox reactors could operate safely after 30 years' life and were inherently safe even when beset by one of the most severe failures, when all the circulators used to pump gas coolant around the hot core of the reactor stopped working.

The board said it had "received many representations from local people and we are impressed with the sincerity of their concerns."

During the planned test, one of Trawafynydd's two reactors was to have been shut down along with its six coolant gas circulators. The electricity board said the natural circulation of the gas alone would maintain the reactor in a safe condition.

The aim was to meet a request by the industry's watchdog, the Nuclear Installations Inspectorate, to show that the reactor would not overheat if its cooling systems were disabled during a shut-down.

Engineering calculations show that, if all six gas circulators had failed and water fed to the reactor's boilers was shut off, natural circulation of the reactor's carbon dioxide coolant in its core would keep temperatures at acceptable levels.

This natural circulation safety feature has been claimed by the board in its safety case for Magnox reactors. The Nuclear Installations Inspectorate asked for this feature to be tested in a report on its long-term safety review of Bradwell nuclear power station in Essex.

During the test the temperature of the core of the reactor would rise and peak at a level well below that for normal operation, said a spokesman.

At that stage the heat output of the reactor is calculated to be 5 percent of its normal output of 850 megawatts. If it rises above this level, the circulators would be available for cooling.

The postponement was greeted with widespread delight in Snowdonia yesterday.

"This is a marvellous victory for the people of Snowdonia," said Mr David Lea, an architect from Llanfrothen. "Now we have to keep up the pressure for the test to be cancelled altogether."

Mr Ioan Bowen Rees, chief executive of Gwynedd County Council, said the authority was "very pleased" and added: "We felt we were up against it when we first heard of the test."

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